DOCUMENT RESUME

ED 136 696 HE 008 752

AUTHOR	Ryan, John W., Ed.
TITLE	Proceedings of the Annual Meeting, Council of Graduate Schools in the United States (16th, Denver, Colorado, December 8-10, 1976).
INSTITUTION	Council of Graduate Schools in the U.S., Washington, D.C.
PUB DATE	Dec 76
NOTE	207p.
AVAILABLE FROM	Council of Graduate Schools in the United States, One Dupont Circle, Suite 740, Washington, D.C. 20036
EDRS PRICE	MF-$0.83 HC-$11.37 Plus Postage.
DESCRIPTORS	*Accreditation (Institutions); Conference Reports; Educational Innovation; *Educational Quality; Enrollment; Females; Foreign Students; *Graduate Students; *Graduate Study; Graduate Surveys; *Information Retrieval; Interstate Programs; Manpower Utilization; Medical Education; Minority Groups; Organizations (Groups); Science Education; *Standardized Tests; Surveys
IDENTIFIERS	Graduate Record Examination

ABSTRACT

Proceedings include presentations during sessions on: issues in interstate programs in graduate education; graduate manpower; increasing opportunities in graduate education for minorities and women; information retrieval; the Graduate Record Examination; creativity in graduate education; assessing graduate program quality; accreditation; biomedical sciences; the concept of campus; and international students. Also included are proceedings of the luncheon meeting and presentations, the business meeting, the report of the council on the GRE Board 1976-77 survey of graduate enrollment, the council's constitution, and a list of member institutions. (MSE)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

Proceedings of the Sixteenth Annual Meeting

COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES

DENVER, COLORADO
DECEMBER 8-10, 1976
THE DENVER HILTON

HE008752

2

Proceedings of the Sixteenth Annual Meeting

COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES

DENVER, COLORADO
DECEMBER 8-10, 1976
THE DENVER HILTON

3

OFFICERS AND EXECUTIVE COMMITTEE—1976

SANFORD S. ELBERG (Chairman)
University of California, Berkeley

S. D. SHIRLEY SPRAGG (Past Chairman)
University of Rochester

J. CHESTER McKEE, JR. (Chairman-Elect)
Mississippi State University

JOE N. GERBER (1977)
Stephen F. Austin State University

ROBERT M. JOHNSON (1976)
Florida State University

ROBERT F. KRUH (1978)
Kansas State University

C. J. NYMAN (1976)
Washington State University

MICHAEL J. PELCZAR, JR. (1978)
University of Maryland

MARGARET N. PERRY (1977)
University of Tennessee, Knoxville

D. C. SPRIESTERSBACH (1976)
University of Iowa

DONALD J. WHITE (1977)
Boston College

DANIEL J. ZAFFARANO (1978)
Iowa State University

J. BOYD PAGE (ex officio)
President, CGS

Edited by John W. Ryan

Contents

I. *Welcome to the Sixteenth Annual Meeting*
Sanford S. Elberg, *University of California, Berkeley* 1

II. *First Plenary Session—Issues in Interstate Programs in Graduate Education*
1. Preliminary Remarks
S. D. Shirley Spragg, *University of Rochester* 1
2. Quality in External Graduate Education
Joe G. Eisley, *University of Michigan* 3
3. Issues in Interstate Programs in Graduate Education
Elmer F. Baumer, *The Ohio State University* 7
4. Transfer and Equivalency of Graduate Credit
David S. Sparks, *University of Maryland* 12
5. Issues in Interstate Graduate Education
Richard M. Millard, *Education Commission of the States* 19

III. *Luncheon*
1. Preliminary Remarks
Sanford S. Elberg, *University of California, Berkeley* 25
2. Presentation of the Gustave O. Arlt Award
Richard M. Stevens, *Boston College* 26
Gustave O. Arlt, *University of California, Los Angeles* 27
3. Current Issues in Graduate Education
Mary F. Berry, *University of Colorado* 28

IV. *Second Plenary Session — Graduate Manpower*
1. Preliminary Remarks
Donald J. White, *Boston College* 35
2. **William C. Kelley,** *National Research Council* 36
3. Perspectives on Graduate Education and the Labor Market
Stephen P. Dresch, *Institute for Demographic and Economic Studies, Inc.* 40
4. The Prospective for Ph.D. Supply and Demand—
Neal H. Rosenthal, *U.S. Bureau of Labor Statistics* 47
5. **Robert M. Bock,** *University of Wisconsin, Madison* 52

V. *Third Plenary Session—Increasing Opportunities in Graduate Education for Minorities and Women*
1. Preliminary Remarks
J. Chester McKee, Jr., *Mississippi State University* 57
2. **John B. Turner,** *Massachusetts Institute of Technology* 57
3. A National Effort to Expand Minority Group Participation in Graduate Education
Sharon C. Bush, *Ad hoc Consortium on Minority Graduate Education* 58

4. Increasing Opportunities and Participation in Graduate Education for Women
Laurine E. Fitzgerald, *University of Wisconsin, Oshkosh* 62
5. A Five Year Experiment in Affirmative Action at The Ohio State University
Frank W. Hale, Jr., *The Ohio State University* 66
6. Collaborative Effort for the Purpose of Increasing the Opportunities of Minorities and Women in Higher Education
Patricia Moore Harbour, *U.S. Department of Health, Education, and Welfare* 71
7. Minority Graduate Schools and their Role in Increasing the Supply of Minorities and Women in Higher Education
Oscar A. Rogers, Jr., *Jackson State University* 74

VI. *Concurrent Workshops*
A. Why Reinvent the Wheel? The Finding of Current Information
Jonathan D. Fife, *ERIC, Clearinghouse on Higher Education* . 79
B. The GRE Aptitude Test: New Developments and Validity
1. **Lyle V. Jones,** *University of North Carolina, Chapel Hill* ... 89
2. A Brief Progress Report on Selected GRE Research Activities
Warren W. Willingham, *Educational Testing Service* 91
C. Creativity in Graduate Education
1. **Anne Taylor,** *University of New Mexico* 96
2. **Wimberly C. Royster,** *University of Kentucky* 100
3. **Sam C. Webb,** *Georgia Institute of Technology* 104

VII. *Fourth Plenary Session — Business Meeting*
1. Chairman's Address
Sanford S. Elberg, *University of California, Berkeley* 109
2. President's Report
J. Boyd Page, *Council of Graduate Schools* 113
3. Committee Reports 117
4. New Business and Election of Officers 121

VIII. *Concurrent Workshops*
A. Assessing Dimensions of Graduate Program Quality
1. **Mary Jo Clark,** *Education Testing Service* 125
2. **Lloyd E. Berry,** *University of Missouri, Columbia* 128
3. **David G. Barry,** *University of Toledo* 129
4. **Michael J. Pelczar, Jr.,** *University of Maryland* 130
B. Accreditation and Graduate Education
Kenneth E. Young, *Council on Postsecondary Accreditation* .. 133
C. Biomedical Sciences—First Session
1. Preliminary Remarks
William H. Macmillan, *University of Alabama* 139

2. The Changing Character of the Postdoctoral
Lee Grodzins, *Massachusetts Institute of Technology* 139

IX. *Concurrent Workshops*
A. Some Implications of the New Concept of Campus
1. **D. C. Spriestersbach,** *University of Iowa* 153
2. Standards in the Hands of an Artful Dean
Roger G. Clark, *University of Illinois* 155
3. **Elmer F. Baumer,** *The Ohio State University* 158
4. Maintenance of Quality in an Off-Campus Joint Center for Graduate Study (Richland)
C. J. Nyman, *Washington State University* 159
B. International Students in Graduate Education
1. **Stan Berry,** *Washington State University* 163
2. **Andrew J. Hein,** *University of Minnesota* 164
3. **Hugh M. Jenkins,** *National Association for Foreign Student Affairs* 167
C. Biomedical Sciences—Second Session
1. National Needs for Biomedical and Behavioral Research Personnel
Herbert B. Pahl, *National Academy of Sciences* 172
2. The Washington Scene: Current and Pending Legislation
Jerold Roschwalb, *National Association of State Universities and Land Grant Colleges* 178

X. Report of the Council of Graduate Schools—Graduate Record Examinations Board 1976-1977 Survey of Graduate Enrollment, Part I 185

XI. Constitution 195

XII. List of Member Institutions 201

First Plenary Session

Wednesday, December 8, 1976, 10:00 a.m.-12:00 noon

WELCOME TO THE SIXTEENTH ANNUAL MEETING

Sanford S. Elberg, *University of California, Berkeley*

ISSUES IN INTERSTATE PROGRAMS IN GRADUATE EDUCATION

Chairman: S.D. Shirley Spragg, *University of Rochester*
Joe G. Eisley, *University of Michigan*
Elmer F. Baumer, *The Ohio State University*
David S. Sparks, *University of Maryland*
Richard M. Millard, *Education Commission of the States*

Sanford S. Elberg

Colleagues:

Each year the Chairman-Elect and the program committee work for several months on this affair trying to accommodate the program with the express suggestions of many members while at the same time, trying to anticipate the problems that we shall all be facing over the next five years. We hope and expect that this Sixteenth meeting will more than justify and repay your investment of time and effort. We also welcome our former President, Dr. Gustave O. Arlt.

I was going over some matters at the desk last evening in my room and my attention was called to a little sign on the dresser that says the best things in life are free—advertising Denver's free bus ride in the downtown sections. I think that I looked at myself in the mirror and found that the best things in life are not free, and one of those is the personal and continuing association that we build from our friendships at these meetings. During the course of the year, this organization has paid dearly for the work of some of our colleagues. We have lost our former Chairman, Dean David Deener; Dr. Stephen Hatchett of the National Institutes of Health who supported so faithfully our GRADCOST program, our colleague Dean Alfred Kelly from Wayne State University and Dr. Allen Carter. We honor them, their memory and their contribution to higher education.

The substantive part of the meeting now opens with a panel on "Issues in Interstate Programs in Graduate Education" with Dean Shirley Spragg presiding. Dr. Spragg.

S. D. Shirley Spragg

Good morning colleagues and friends of graduate education.

Our topic this morning is one which has rapidly assumed interest and importance in graduate education. I would like to take just a few moments to set the

stage and background for the presentation that we shall be fortunate in hearing very shortly.

I would like to remind you first of all of a survey which was conducted by the Council of Graduate Schools on graduate external degree programs in late 1975. The survey found that some 80 percent of member institutions do not offer external degrees programs, some 2 percent are considering it and some 17 percent of the institutions offer one or more external degree programs. Of the 127 external degree programs reported, 116 were at the master's level and eleven were at the doctoral level. Most of these programs included some aspect of the field of education. A number of these external degree programs were within the same state as the home institution. A good many were in other states other than the parent institution, and several were not only out of state but also removed from the region of the regional accrediting association which has a parent institution. Hence, the name or title for our session this morning "Interstate Programs in Graduate Education."

The actions to the growth of external and remote programs have been many and varied. As for the individual graduate deans involved, the actions have varied all the way from indifference through expressions of concern to cries of outrage. The reaction of state boards has been varied. Many of them, as far as we can tell, have been indifferent. A few have begun to set up a machinery for the authorization of foreign educational programs. In this area, the word foreign means outside the borders of the state. We shall hear about one such activity on our program this morning. Some state borders, that of the state of California, have taken the position that if the institution offering an external degree program is accredited in its own state or region by its own regional accrediting association then nothing further is needed. We will hear about the reactions from the national organization of the states.

The reactions of the regional accrediting association themselves have varied to some extent. For some years, the regional accrediting associations have had an agreement amongst themselves that programs offered by institutions accredited in another region be regarded as approved thus allowing programs to go by the regional association where the program is being offered. However, this position may be changing quite rapidly. A joint task force of the Council on Postsecondary Accreditation and CGS is currently working on revising the existing joint statement on accreditation in graduate work—a statement that has been in effect for a number of years. The joint task force is considering a statement which will urge the regional association to accept the responsibility for the accreditation of all academic units offering programs in their region without regard to the location of the institution offering the program. I suspect that we will hear more about it on Friday when Dr. Kenneth Young, President of COPA, will be making his presentation.

There have been and are several studies on external degree programs and we will hear about some aspects of one of them at the session this morning. I must also mention that last winter the Executive Committee at CGS established a subcommittee to look into some of the issues which arise in the proliferation of external degree graduate programs with the expectation that the subcommittee would come up with some recommendations for statements of policy in this area which the Executive Committee might wish to adopt. The

subcommittee consists of Dean Phyllis Bober, Bryn Mawr, Wade Ellis, University of Michigan, Stirling Huntley, California Institute of Technology, Vice President Michael Pelczar, University of Maryland and myself as chairman. This committee, has been at work and its preliminary recommendations have been responsible, at least in part, for the session this morning which we hope will bring out some of the issues. There is also a CGS task force on the Transfer and Equivalency of Graduate Credit which has been active and concerned itself with both aspects of the situation. This task force is preparing a position statement for CGS consideration, and you will hear of the activities of that task force this morning.

The panel this morning is a distinguished one with a good many diverse talents and backgrounds. I am going to call on our speakers and ask them to make their presentation. I would ask that we reserve all questions and discussion until all the presentations have been made.

QUALITY IN EXTERNAL GRADUATE EDUCATION

Joe G. Eisley

Standards of quality and the control of quality are primary concerns of graduate schools. These concerns are intensified by the introduction of nontraditional approaches and, in particular, of graduate programs where instruction takes place external to the campus. To provide a context for my later remarks on quality, I wish to comment upon some aspects of the nontraditional study movement and report briefly upon a project which has engaged me this past year.

The Carnegie Corporation of New York was kind enough to award a grant to the Rackham School of Graduate Studies of the University of Michigan to enable us to study the feasibility of offering external graduate degree programs. My principal associate in this endeavor has been Larry C. Coppard. These remarks reflect our combined views.

Now it happens that mention of external programs conjures up certain images in the minds of many listeners which often complicates further discussion. We have chosen, therefore, to describe a major objective of the study without further explicit reference to the external degree. The objective is to determine the role of the University, and other graduate institutions—the State of Michigan, in extending opportunities for graduate study to persons constrained from full-time resident study because of employment, family responsibility or other factors. External graduate degree programs then become one principal way to bring this about.

Much has been written upon this subject. The need for more flexible graduate programs has been described by such diverse groups as the American Academy of Arts and Sciences in *The Assembly or University Goals and Governance;* the Carnegie Commission on Higher Education in *Less Time, More Options: Education Beyond High School;* the Commission on Non-Traditional Study in *Diversity by Design* and *The External Degree;* the Educational Testing Service in *Scholarship for Society—Panel on Alternative Approaches to Graduate Educa-*

tion; and most recently by the National Board on Graduate Education in *Outlook and Opportunities for Graduate Education.*

In all these studies, a number of common concerns are expressed. There is growing recognition that learning is a lifelong process and that educational programs should be made more accessible to older students. Traditional on-campus resident programs, while still valid for many youth, cannot serve all the educational needs of the adult population. Thus, resident programs fail to reach large numbers of potential students with superior qualifications. In this group are many who hold responsible and important positions in their field of work but are unable or unwilling to leave these positions to obtain further education. Higher education loses a unique opportunity for having an impact because it has not reached these students.

In contemplation of these and many other sources, we observe that formal education tends to be placed neatly between the play of early childhood and the work of adult life, but a new pattern interweaving education-work-leisure is emerging. We call this lifelong learning. And, while a purpose of liberal education is to prepare a person for a lifetime of learning, we have not made sufficient provision for the use of universities in this process. Even graduate education is designed for the young, the mobile and financially able.

There are, however, a number of forces at work that suggest change is imminent. In academic areas much of graduate education has been caught up by a narrow commitment to vocationalism—the preparation of scholars for employment in academic positions at universities. As this market has become increasingly weak, signs of change appear. Knowledge-based industries, however, continue to grow. In spite of cries that too many persons are overeducated or underemployed, there is evidence that there are still large numbers among those employed who are underqualified and are potentially in need of graduate educational opportunities. Furthermore, there is a growing trend to mid-career change, either forced by changing employment patterns or committed voluntarily, which will provide a need for additional education. In technical areas, educational obsolescence has become a problem. We can also expect, if not precisely predict, substantial societal changes, such as shifts in public priorities, which will create new educational needs.

All these factors should be viewed as opportunities for graduate schools, if the schools can respond. Let us examine some of the alternatives or options for that response. We might for example try to develop new forms of financial aid which are sufficient to bring these persons back to campus. We might also make campus programs more accessible to older students by evening and weekend scheduling, more use of independent study, etc. Of course, many universities are already doing this, particularly those in metropolitan areas where students can commute. In our particular situation, however, we find the next two alternatives especially attractive. First, to develop new instructional methods to make existing campus programs accessible to students in or near their place of work or residence and second, to develop new programs directed toward specific interests and constraints of older students. Thus, we focus on external programs which we define as quality graduate programs characterized by methods of instruction and organization that make them available to students constrained from attending traditional residential programs.

Now let us examine to what extent this is already being done. You may remember the survey by the Council of Graduate Schools just a year ago which identified 127 external programs at 54 member institutions. Although we have found that this is a small fraction of external programs being offered which fit our definition of external programs, the distribution by field of study is representative. The survey found that there were 47 programs at 31 institutions in education; 47 programs at 27 institutions in social sciences, which in this case meant business-management-administration; 13 programs at 10 institutions in physical science, which in this case were nearly all in engineering; 8 programs at 8 institutions in biological and health sciences, and 2 programs at 2 institutions in arts and humanities. Thus we see that most efforts are in education and business followed by engineering and health science, with hardly anything happening in arts, humanities, or the academic social sciences. We observe that nearly all existing external programs have similar characteristics. A relatively large number of students are easily assembled in one place; the students are closely identified with a single employer or employment category; the master's degree has direct employment potential; and the program content and method of instruction is carried over from the campus with little or no change.

We refer to a program offered away from the campus that is not modified in any other way as an extended-campus program. They constitute the vast majority of existing efforts. There are other forms, however. Programs based on individualized contract learning are growing in number. Examples are at Empire State College at the undergraduate level and at Union Graduate School at the graduate level. Another possibility is assessment degrees, i.e., no instruction is offered, but degrees may be awarded upon satisfactory completion of appropriate tests. The Regents External Degree in New York is awarded this way at the baccalaureate level and the University of London has awarded graduate degrees by assessment for many years. A fourth possibility is to provide instruction by modifying the method of instructional delivery to remove the constraints placed on the external student. Examples of this are the Open University in Great Britain and the University of Mid-America in the central United States. Both are baccalaureate level institutions.

We believe that the modified instructional approach is a promising one and in some cases may be a necessity to maintain accepted levels of quality. The baccalaureate schools that have developed such systems do not provide a good example for graduate use, however. They have developed media based programs which have high initial production costs and thus they require mass markets to recover those costs. At the graduate level, we shall encounter much lower enrollments, students will be more widely dispersed, the more specialized instructional material will have relatively short shelf life, and more attention must be paid to individual needs of students and faculty. Thus, one of the challenges will be to produce media based instructional materials with low production costs.

Having arrived at this point with a reasonably favorable disposition toward extending more opportunities to older students, we must examine more closely the reasons given by many faculty for not proceeding. They argue that to do a proper job will cost too much or, if costs are kept down, the resulting program must necessarily be second rate. They see a diversion of resources from existing,

and, therefore, low quality programs. They believe that organizational and administrative changes necessary to accommodate the new programs will likely affect the campus programs adversely. They are reluctant to embark upon new ventures that will increase workload with no assurance that there will be any compensating incentives and rewards. They believe that the control of quality in such programs is difficult and may not be worth the effort. These are all legitimate concerns which must be resolved if we are to proceed.

There are, on the other hand, a number of possible advantages. The large pool of potential students suggests an opportunity to improve the quality of students in the graduate programs. The closer identity between student and employer provides a ready made internship or work-study situation. Interdisciplinary instructional and research opportunities can be enhanced by work with older students who by nature of their experience and maturity can appreciate the problems and potentials of interdisciplinary work. New opportunities for faculty can aid in their growth and development. And work on modified instructional systems can feed back to improve the instruction on campus.

In all these arguments, for and against, the overriding concern is quality. Faculty have taken a look at existing external programs and have found many of them deficient. In addition to the general concerns expressed above, they have a number of specific objections. They are concerned about programs offered by units not in the main stream of the institution, i.e., special units, not academic departments. They believe that too much use is made of adjunct faculty or regular faculty on an overload schedule. It is observed that many programs do not provide as full and as effective supportive services as are available on campus. It is believed that often students are not screened as closely nor are they worked as rigorously as on campus. It is noted that to be a fully effective program, content and style may have to be adapted to match the older student, but this is seldom done. And they recognize that external programs do not appear to be evaluated as often or as thoroughly as the campus counterparts.

In developing recommendations, we must meet all of these concerns head-on. Our first position is that external programs should be of no less quality than campus programs. We have outlined some of the factors that should go into the criteria for assessment of quality. These factors include:

1. Purpose of the Program
    a. Goals and objectives
    b. Societal need
    c. Appropriateness for institution
2. Students
    a. Admissions standards
    b. Growth and development
    c. Academic performance
    d. Job placement and performance
3. Faculty
    a. Sources
    b. Roles
    c. Rewards

4. Instruction
    a. Process
    b. Materials
    c. Support systems
    d. Student learning support
5. Support
    a. Budget
    b. Organization
    c. Administration

Each of these factors must be examined as rigorously for external as for campus programs. While high standards must be maintained in each case, they must not be identical for each factor. Doing exactly the same thing off-campus as on-campus is not the way to insure quality, because the problems encountered are different. It is the whole program that must meet the same level of rigorous standards, not each individual part. Therefore, because the two situations are different and one is new and less tried, more comprehensive and detailed quality assessment efforts must be made with external programs. It can be hoped, however, that they will be composed in such a way to help these programs develop rather than deter them.

We see some patterns developing in the recommendations we are about to offer to our own institution to insure a measure of control over quality. We are concentrating only upon complete programs because we believe that greater interest and attention will be paid to them than to isolated courses or loose collections of courses. We will likely recommend that all programs be administered and taught by regular faculty or regular academic appointments because we believe special administrative units and use of adjunct or overload faculty will make it more difficult to deliver quality programs. We believe that financial support should be integrated in the regular budget. External programs need not cost more than campus programs nor should they be expected to cost less. Quality suffers when off-campus programs are expected to be self-supporting or even profitable when comparable campus programs are not. We believe that in most cases instructional delivery should be modified both to take advantage of the external environment and to compensate for factors missing in that environment, but which are available on the campus. Likewise, we believe innovations must be made in the instructional support and counseling services to insure equality with campus programs.

Whatever the outcome of the movement to external graduate degree programs, success will depend upon the ability of institutions to deliver programs of quality.

ISSUES IN INTERSTATE PROGRAMS IN GRADUATE EDUCATION

Elmer F. Baumer

It is my assignment to describe the Ohio Board of Regents' statement of principles and practices designed to deal with external degree programs and to set forth my impressions of the experience thus far in implementing them. At

the outset, I want to make it clear that the involvement by graduate deans in this process has been much more direct with respect to the establishment of the statement of principles than it has been with implementing them.

In a general sense, the Ohio Board of Regents has responsibility for granting official authorization to any educational institution wishing to offer or currently offering courses and programs within the state. The process of locating all such institutions is not a simple one but, when identified, each institution is obligated to furnish the Board with data and information as set forth in the Regents' rules. In this respect, the Board acts as a consumer protection agency to verify the validity of the degree. This verification is accomplished through the issuance of a Certificate of Authorization.

In addition to this responsibility, the Regents also have final authority to approve all degree programs offered by state-supported institutions. They also present the comprehensive budget to the state legislature for the support of all state-assisted institutions. Obviously, the size of this overall budget and the Regents' ability to convince the legislature of the need to supply the requested funds is most important to all state educational institutions.

But of equal importance is the Regents' formula for the distribution of the appropriated funds. This distribution is presently being accomplished by the use of a series of funding levels established by the Regents and applied to the enrollments at each institution. A specific support level has been established for broad areas of instruction offered at the undergraduate, Master's, Ph.D. and professional levels. Funding levels have also been established for courses offered at branch campuses and at other off-campus sites.

Until about a year ago, there was no state support for courses offered at off-campus sites, a fact which I believe had a significant affect on the number of out-of-state institutions offering programs in Ohio. This funding position by the Regents was not without good reason when one recongizes the investment in bricks and mortar to provide a public educational facility within thirty miles of all citizens in the state

With the introduction of convenience delivery in education, that is, the offering of courses at high schools, industrial firms and military establishments, the state institutions found it difficult, if not impossible, to respond to various requests for college level course work, especially at the graduate level, without offering courses at off-campus sites. Under these circumstances, it was not difficult for institutions to establish "unmet" needs and therefore a number of out-of-state institutions, both public and private, and some in-state private institutions, initiated extensive course offerings all over the state.

This avalanche of course and program offerings from such distant locations as Florida and California, and the wide variations in the quality of the courses, the instruction, and rigor of some offerings, caused the graduate deans to question the Chancellor of the Board of Regents about how some of these institutions were able to obtain a Certificate of Authorization to operate in the state. In response, the Chancellor pointed out that the deans had not provided him with a set of minimum standards that could be applied to both in-state and out-of-state institutions to serve as a basis for the issuance of a Certificate.

This challenge stimulated action among the deans to develop standards they felt would serve as a "bottom line" below which no courses or programs would

merit a Certificate. For all practical purposes, the standards developed by the deans were written into the Regents' rules. Since the adoption of these rules, it has been the responsibility of each institution seeking a Certificate to provide documentation on the specific points of the rule. Following are the major standards taken directly from the Regents' rules and a brief summary of the implementation section of each rule along with some comments.*

Standard One deals with the purposes of the off-campus activity. "It must be clear that the overriding purpose of the off-campus instructional activity is to carry out an educational mission of the sponsoring college or university. Secondary or incidental purposes such as the generation of income beyond expenses incurred and the fostering of improved public relations must not predominate as purposes for off-campus programming." This is accomplished by requiring a statement of the eudcational goals and objectives as set forth in the most recent accreditation review and a demonstration of a clear relationship of the off-campus offerings to the larger educational goals of the institution.

The interpretation and enforcement of this rule may prove to be interesting. When faced with the obligation of setting forth the institutions' goals, the resulting statements are likely to be so pompous and pontifical as to win over the most ardent states righter. Such phrases as "meeting society's needs for education," "meeting unmet needs" and "innovation" should be sprinkled liberally throughout the statements. What one would not want to say is that the goal of the off-campus offerings is to generate supplemental income for the institution. Notwithstanding what is set forth in the purpose statement supplied by institutions, I find it a bit difficult to understand why a major state university in California needs to come to Ohio to prove they are interested in meeting the needs of society.

It also seems appropriate at this stage to say a few words about educational innovation. This audience has frequently been through discussions about the pitfalls of this term and I will not belabor it again. But if we are seriously interested in the development of a workable approach to innovation, then we must first answer who should do this experimentation. What safeguards should be set up to avoid catastrophe for the students? Who will pay the price for the failures when the sponsoring institution is no longer operating in the state?

One more point about innovation. I feel it is safe to say that all institutions in attendance at this conference have been criticized for traditionalism and a reluctance to innovate in their on-campus programs. This criticism can be heard not only from the general public but also from state educational agencies such as the Regents. It gives one the impression that established institutions are tradition bound and not innovative. I feel this is partly our fault in that too many educational institutions have not spent enough time with the community, with business and with state agencies so they fully understand what is going on on most campuses. The isolation of graduate education has brought about some of these feelings. Not enough people know what quality means in graduate education and what difference it makes. This is why persons who simply buy a degree

*Standards for Issuance of Certificates of Authorization Under Section 1713.03, Ohio Revised Code, Part B.

find it has utility in some places. We may call this fraud, but for some persons such degrees have no doubt helped locate and hold a position.

Standard Two deals with academic control. "The design, conduct, and evaluation of off-campus instructional activities must be under the direct and continuous control of the sponsoring institution's established processes for academic planning and quality maintenance."

Here the sponsoring institution is required to offer evidence that the off-campus program is under the control of the central campus. It must identify the persons responsible and how they fit into the central academic control processes. This includes responsibility for counseling, admission, course content, evaluation, records and appointment of faculty.

The determination of compliance on these points is complicated by the administrative structure that exists on many campuses offering off-campus programs. As a general rule, off-campus programs are offered through an extension division, institute arrangement or through a college such as is the case with some colleges of Education. The problem is that these units are frequently self-contained and offer courses and programs that are not available on the main campus. The degrees are somewhat different and the faculty may be entirely different. Such situations make the determination of who is in control very difficult. Does it matter if an institution is willing to offer a degree in another state but is not willing to offer the same degree on the home campus? Furthermore, some seeking permission to offer programs have no campus.

It occurs to me that when it has been established that an institution is offering courses and programs off-campus that are not fully recognized on-campus, this fact should be made a matter of public knowledge. Under such circumstances, the state could perhaps not allow the granting of off-campus degrees with the name master's or doctorate unless the same degree is offered on-campus. These off-campus programs would then assume their own identification without direct reference to traditional degrees. This is no doubt too simple a solution.

Standard Three deals with the curriculum. "All off-campus teaching and the credits awarded in such instructional activity must bear a clear relationship to the degree programs of the sponsoring institution."

The sponsoring institution is required to demonstrate the relationship of off-campus courses to the degree programs. The curriculum as a whole or in parts must contain the essential components of the discipline. Course syllabi are required and must be at a level appropriate for the degree. Student evaluation and the integrity of the grading system and exit criteria must be shown. The sponsoring institution must also show evidence that there is a reasonable prospect that the credits will be accepted by other well-established institutions.

Standard Four refers to faculty. "Faculty persons assigned to off-campus instruction must be fully competent to undertake the level of instruction offered and must be selected and evaluated according to standards compatible with central campus instructional expectations."

The sponsoring institution must demonstrate that off-campus faculty have credentials and undergo review similar to central campus faculty. Faculty preparation must be appropriate to the level of instruction and they must have had appropriate teaching experience.

Here again the structure of the sponsoring institution is important. Are

faculty responsible to the parent departments or to the extension division which has no departments? This can materially affect the response. What should be the response when some percentage of an out-of-state institution's program (and this percentage can vary greatly) is being provided by instructors who are regular faculty members of our own institutions?

Standard Five deals with supporting services. "An adequate array of supporting services must be at hand and operable to assure a high quality of off-campus instruction." The sponsoring institution must demonstrate that guidance and counseling opportunities are provided to assure a reasonable opportunity for the student to meet the requirements of the degree. Sufficient library and laboratory facilities must be on hand to sustain the off-campus program.

Standard Six refers to contracts with cooperating institutions and students. "Wherever off-campus offerings involve cooperating public or private institutions, educational or otherwise, and wherever off-campus offerings involve well-identified pilot student groups, it is the sponsoring college or university's responsibility to assure that all parties understand their rights and obligations within the off-campus program of instruction."

This section requires assurance that clear agreements exist with cooperating institutions, what services are expected to be rendered and how costs will be shared. The sponsoring institution must assure that academic control is retained by the credit granting institution and that the extent of a continuing commitment be made clear to students.

Standard Seven deals with general operations. "The offering of off-campus programming must be carried out in a manner consistent with high standards of ethical business practice." Here the sponsoring institution must show that the services available are available to all students with a clear indication of the continuing nature of the commitment. A clear policy with respect to tuition and refund must be provided.

Standard Eight addresses the matter of accreditation. "It must be clear that the sponsoring institution has sought and achieved appropriate accreditation for its central campus programming and that it has sought such accreditation as may be available to it for the specific off-campus programming sought to be offered."

The sponsoring institution must show evidence of institutional and professional accreditation where applicable. Off-campus accreditation must be addressed separately including a report of its current efforts to achieve such accreditation.

There seem to be many misconceptions about accreditation and the tendency is to say that if the institution has been accredited, it should be permitted to operate.

Standard Nine deals with visiting examinations. "Each institution conducting off-campus instruction may be examined by a panel of visitors representing the Board of Regents for the purpose of assessing the institution's fulfillment of these Standards. Wherever practicable, the Board of Regents will attempt to rely upon the reports and site examinations made by regional accrediting associations to avoid duplicative and burdensome review processes."

The sponsoring institution is required to make appropriate preparation for visitation and must bear the reasonable costs of visitations for purposes of

examining its off-campus programming. To my knowledge, no such off-campus visits have been made.

These nine rules represent the basic standards of Regents' rules. I am aware that the Regents have denied a Certificate to at least one institution in the last year and that others have or are submitting the required materials. At this time, it is too early to give a more complete evaluation of the ability of such a state agency to deal effectively with off-campus programs. However, I feel the establishment of these rules has been a move in the right direction. I am concerned, however, about what would happen if fifty states set up fifty different standards. Some real efforts must be made to assure reasonable uniformity in these regulations and for the development of reciprocal arrangements between states.

These rules identify concerns about degree programs and spell out minimum expectations. There is no doubt that problems of interpretation and jurisdiction will continue to plague these efforts. I mention jurisdiction because there will no doubt be important legal issues that involve questions about interstate commerce and the application of these rules to programs offered on federal property such as military bases. Also, definitions used in such rules are bound to create more problems. What does one do when there is no campus? For example, four scientists requested permission to offer their own Ph.D. degree. A hospital asked to grant its own degrees.

The objective of setting up such minimum standards cannot be to exclude out-of-state institutions but rather to determine who can operate. Many good, high quality programs are available and serve a real purpose. The fact remains; however, that the whole spectrum of degree quality is being offered to the public starting with what appears to be the outright sale of the diploma. As another concurrent control mechanism, it might be advisable for graduate schools to make a more serious effort at establishing the meaning and characteristics of reputable degree programs among those who hire our graduates. In the near future and in the long run, such an approach may prove to be more effective, especially if legal encampments begin to slow up the authorization process. In marketing and economics, this is called product differentiation and, like in business, educational institutions are beginning to learn such identification is important, difficult and expensive to maintain.

TRANSFER AND EQUIVALENCY OF GRADUATE CREDIT

David S. Sparks

Our topic this morning is "Issues in Interstate Programs in Graduate Education." My talk is about graduate credit, how it is generated, recognized, used (and occasionally misused), and transferred. While my subject and our general topic are related in several significant ways there are several other ways in

which they bear little relation to each other. Permit me a few words of explanation.

As with so many institutions in our nation graduate education has found itself on the defensive during much of the past decade. We have been charged with sins both cardinal and ordinary—of both omission and commission. We have been condemned for elitism by some, and excessive egalitarianism by others. We are too preoccupied with basic research and with the Ph.D. degree. We have enslaved all of undergraduate education by making liberal arts colleges into preparatory schools for graduate study. We are inordinately expensive, deeply conservative, excessively exclusive, and probably irrelevant, it is claimed.

But, as keepers of keys to the gates that bar the road to upward mobility, we must be dealt with. For some of us the remedy to be applied consists of formidable government regulation. For others, presumably those not totally beyond redemption, conversion is through friendly persuasion. Still others suggest that financial control is the only way to deal with us.

As educators, deeply committed to the search for truth, the power of evidence, and the efficacy of persuasion, we have probably been more profoundly moved by appeals to our own reason and our conscience than by the threats of the bureaucracy or the possibility of starvation. I submit that the appeals and prescriptions contained in the Newman Reports, the Panel on Alternate Approaches To Graduate Education, the National Board on Graduate Education, and the Task Force on Graduate Education of the Educational Commission of the States, have had a far greater impact on our thinking and our practice than the legal imperatives and fiscal restraints under which we currently operate.

It is, in part, in response to these prestigious, and frequently persuasive, reports that we have radically broadened access to graduate education, sought to develop new and innovative delivery systems, and introduced new and more permissive systems of accounting for our activity. It was Dean Spragg's judgment in putting together this panel for this morning that there is a strong interaction between the rubric of "extended degree programs" and the accounting system of graduate credits. As a consequence, he asked me to join the group and urged me to provide a progressive report on the work of the Council's Task Force on the Transfer and Equivalency of Graduate Credit.

Thus, I am here this morning as the spokesman of one of your Task Forces and what follows is a third, but not final, draft of a statement we are proposing to the Executive Committee of C.G.S. for publication in the series of C.G.S. "Statements." The report, as a result, must be heard, and judged, as one addressed not exclusively to a body of sophisticated graduate deans but rather, as a statement for the guidance of present and prospective students, graduate faculty members, and our many publics. Of course, an important reason for bringing the report here to you this morning is the opportunity it provides me to invite your comments, either verbally or in writing, and here now or later, on our work.

Before reading the Report let me remind you of the membership of the Task Force for they are the true authors of what follows. They are: Dean Earle Canfield of Drake University, Dean Mary Ann Carroll of Indiana State University, Provost Robert Johnson of Florida State University, Dean Andrew Hein of the University of Minnesota, Dean Arthur Reynolds of the University of Northern Colorado, and myself.

GRADUATE CREDIT: ITS RECOGNITION AND TRANSFER

Draft Report of the Task Force on the Transfer and Equivalency of Graduate Credit

December, 1976

I. *INTRODUCTION.*

The traditional public perception of graduate credit is straightforward utilitarian and, understandably, does not deal with the learning conditions necessary for an experience to merit graduate credit. Graduate credit is perceived by most people as something one earns for study and experience acquired while a student in a graduate school to which one is admitted following successful completion of a baccalaureate degree program in a regionally accredited college or university. It is given for the successful completion of courses or other learning experiences such as directed research, internships, practicums or field work. Under certain conditions, it can qualify one for a graduate degree, establish eligibility for a particular level of employment or yet higher education, provide a claim to a higher place on a salary schedule, or be recognized as the basis for some other advantage or privilege. It is measured in semester or quarter credit hour, or graduate units. Its accumulation is recorded on official transcripts and some portion of it becomes a kind of legal tender since it may be transferable from one institution to another.

In recent years there has been a growing concern for those traditionally barred from participation in graduate education and the benefits it bestows. One expression of that concern has been an effort to win recognition for non-traditional learning acquired either prior to, or after, admission to formal institutions of higher education. This concern has been formalized in the creation of the Commission on Non-Traditional Education and the more recent Cooperative Assessment of Experiential Learning. Both groups, with the financial assistance of the Carnegie Corporation and staff support by the Educational Testing Service, have concentrated on the evaluation of non-traditional learning at the undergraduate level, but both have expressed an interest in the possibilities of awarding graduate credit for experiential learning.

While recognizing the validity of many of the public perceptions of graduate credit, members of graduate faculties and their deans share a different understanding of the sources and nature of graduate credit. Not surprisingly they look to the qualifications of the faculty, to the qualifications of the student, and to the exchange of information, ideas, and values that takes place between them and the environment in which that exchange takes place. They are quick to admit that much of learning is life-long, that much of it that is most useful or valuable takes place outside of institutional settings, and that society is immensely benefited by the continuing participation of its citizens in life-long education. They do believe, however, that the award of graduate credit should be limited to those forms of learning that meet certain minimum academic criteria.

II. *GRADUATE CREDIT.*

A. *Criteria for Graduate Credit.* Unfortunately the term "graduate credit" is often used to describe any academic credit earned by an individual following

successful completion of a baccalaureate degree program. As used here, however, the term is restricted to academic credit acceptable in partial fulfillment of requirements for an advanced degree, whether so used or not. As such it is awarded only by qualified members of faculties responsible for advanced degree programs. Such faculty members have normally earned the highest degree in the field or have its equivalent in scholarly or creative achievement. Additionally, faculty members awarding graduate credit will have recognized standing as scholars and teachers in the particular field in which credit is granted.

Students seeking graduate credit must display evidence of superior academic aptitude, achievement, and motivation. The successful completion of a baccalaureate degree program in a regionally accredited college or university at a level which gives positive evidence of capacity for advanced study is widely accepted as the minimum requirement for participation in graduate work. For students prepared in foreign universities, or in non-traditional modes, evidence of equivalent aptitude, achievement, and motivation must be presented. Aptitude and achievement is frequently documented by high scores on nationally standardized tests, such as the Graduate Record Examination, while aptitude, achievement, and motivation can frequently be determined through evaluations made by competent persons who have known potential students in comparable situations.

The exchange of information, ideas, and values that takes place between scholar-teachers and exceptional students, and the environment in which that exchange takes place cannot be described with great precision. Learning does and will take place in a great variety of settings and under an equally wide variety of faculty-student relationships. There are, however, some *minimum* conditions that must be met. Among them are:

1. Study at a level of complexity and generalization that reflects and extends the knowledge and intellectual maturity of an accomplished baccalaureate degree holder.
2. Study among students interested and capable enough to analyze, explore, question, reconsider, and synthesize old and new knowledge and skills.
3. Study in a close and continuing contact with an experienced scholar-teacher, a member of graduate faculty, in both on-campus and off-campus learning situations. The student becomes a junior colleague or an apprentice with opportunities to interact with instructors and peers in both formal and informal settings.
4. Study in a setting or settings in which library, laboratory, computer, audio-visual, performance, and field facilities are commensurate with the level of learning.
5. Study in a setting and under conditions controlled by qualified graduate faculty members who are available to advise graduate students and who regularly evaluate graduate student performance in accordance with well established and published standards.
6. Study which is applicable toward a graduate degree.

While these criteria are not exhaustive or definitive they indicate the absolute necessity for high level interaction between qualified graduate faculty and qualified students in a supportive environment as the *sine qua non* for the awarding of graduate credit.

Graduate schools will continue to recognize and grant graduate degree credit for non-traditional and experiential learning in the future, as they have in the past, when that learning meets these minimum conditions. Graduate faculty members and graduate deans have had long-time experience with offering, supervising and evaluating learning experiences which are not in the usual classroom mode. Graduate study through faculty supervised individual studies, research projects, internships, field work, practicums, theses, and dissertations has been commonplace for several decades. Moreover, the demonstration of competence in the discipline by means of the written and oral comprehensive examinations has been the warp and woof of graduate education since time immemorial.

Graduate faculty members should be encouraged to continue these non-classroom supervised educational opportunities. They have had many years of highly successful experience in sponsoring, supervising, and evaluating study of this type. As graduate faculty members point with pride at the flexibility in graduate programs which has developed through the years, they should maintain an open mind when considering the additional contributions which non-traditional and experiential learning can make to the graduate degree programs of the young scholars of the future.

B. *The Academic Uses of Graduate Credit.* Because graduate credit reflects both achievement by the student, and the considered judgment of highly qualified members of a graduate faculty, it is widely perceived to be both useful and valuable. Within graduate degree programs it is regularly used to measure progress toward successful completion of academic requirements. Minimum time or course requirements are normally expressed in graduate credits. The requirement for a major or area of concentration, a minor or supporting area, and the requirement that study be distributed among a group of mutually reinforcing subjects, are normally expressed in graduate credits. Graduate credit is frequently required to meet stipulations about the level of difficulty or degree of specialization expected of master's or doctoral students. Although the residence requirement is frequently expressed in terms of time it is also described exclusively in terms of graduate credits in many graduate catalogs. And, finally, graduate credit is normally used to recognize the successful completion of special degree requirements such as those for directed research, internship, artistic or creative performance, or field experiences.

Because these uses of graduate credit are well and widely understood by graduate faculty members and their students, the utilization of graduate credit within the academy has proved a versatile and efficient method of accounting. It has proved adaptable to a wide range of learning experiences. It is a splendid mode of communicating the results of graduate study to both internal and external audiences and is difficult (although not impossible) to counterfeit.

When, however, the generation of graduate credit becomes dependent upon novel education delivery systems, highly compressed schedules, excessive reliance on adjunct faculty, inadequate library or laboratory facilities, and administrators unfamiliar with the values and expectations of graduate faculty, the difficulties multiply and caution must be exercised.

III. *RECOGNITION AND TRANSFER OF GRADUATE CREDIT.*

A. *Recognition of Graduate Credit.* Although graduate credit bears a superficial resemblance to money, there are important differences between the two. True, graduate credit, like money, is earned, can be accumulated and, within limits, can be transferred. Frequently it can also be traded for an improved salary, status, or security, either directly or after conversion into an advanced degree. And, like money, its value is subject to the market forces of supply and demand. There are, however, several significant differences between money and graduate credit. Recognition of graduate credit is dependent upon its use, the time involved, and upon student performance.

1. The recognition of graduate credit is dependent upon its use. Some course credits may be acceptable for meeting gross credit hour requirements. Others may be recognized as meeting major, minor, distribution, or level requirements. While still others can be used only in meeting specialized degree requirements for research, special skills, methodology, or field experience.
2. The recognition of graduate credit is also dependent upon time. Many individual faculty members, departments, graduate schools, or graduate deans, place time limits on the life of graduate credit. In rapidly changing subject fields the time limit may be as short as two or three years. In more stable fields it may be as high as eight, nine, or even ten years. Summary data from graduate catalogs indicate that time limits are being lengthened in response to the needs of an increasingly mobile and part-time student body.
3. The recognition of graduate credit is also dependent upon student performance. Graduate faculty members, and their deans, normally limit the award of graduate credit to student performance that has resulted in grades of C or better and may limit it to learning experiences in which a B or better was earned. Further, many institutions require a higher level of performance for the recognition of credits for which transfer is sought than for those earned at the institution that will grant the degree.
4. Experiential learning may be defined as learning acquired through work experiences, life experiences, service experiences, and other special accomplishments which occur outside a classroom setting. Since there can be no opportunity to structure the learning experience, to establish what the student must accomplish in the learning experience, to assess the amount of time devoted to the learning experience by the student, nor to monitor the learning experience after the fact, no graduate credit should be granted for experiential learning which occurred *prior* to the student's matriculation in the graduate degree program.

   The recognition of graduate credit for experiential learning requires particular attention to the criteria previously cited. Graduate credit should be granted for experiential learning only when a graduate faculty and dean of an accredited institution have had the opportunity to plan the experience, to establish its goals, and to monitor the time, effort and the learning that has taken place.

B. *Transfer of Graduate Credit.* The difference between graduate credit and

money is even more sharply delineated when the question is one of transferability. Graduate catalogs and recent surveys of current practice indicate that limits on the transfer of graduate credit are being reduced but remain substantial.

Credit to be transferred must satisfy the graduate school requirements and must be evaluated by faculty immediately responsible for the degree program.

1. The amount of graduate course credit that is acceptable for transfer has, by tradition, been limited to six semester hours in a thirty or more hour master's degree program. However, some institutions are willing to consider the transfer of nine, twelve, or even sixteen semester credit hours toward a master's degree.
2. The transfer of graduate credit is also limited by considerations of the age of the credit. The range is wide but few institutions will accept for transfer graduate credit that is older than that submitted by non-transfer students. If credit earned more than five, six, or seven years prior to submission for a degree is unacceptable from a campus student then it will not be accepted for transfer. The significant points are, however, whether the credits submitted for the degree represent the state of the art in the particular subject at the time the degree is awarded and whether the student has retained the knowledge involved.
3. The transfer of credit is also limited in a second way. Some institutions will accept for transfer only those credits earned following admission to their own degree programs. Occasionally they will also require that advance permission be sought for courses to be subsequently transferred into a program.

   Other institutions, however, will accept for transfer credits completed before admission provided they are applicable to the degree being sought. Once again, the decision should be based upon the conditions stated in 1 and 2 above. Blanket transfer is not appropriate.
4. The transfer of graduate credit is also generally limited to certain types of learning experiences characterized by the foregoing criteria. Only rarely will a graduate faculty or dean grant transfer credit for correspondence course, travel not directly related to a particular course or research project, or for life experience. And some graduate educational credits earned in courses or experiences offered under the auspices of proprietary schools, business or industrial training programs, or schools conducted by the Department of Defense, Department of Agriculture, the National Institutes of Health, or National Laboratories or professional associations traditionally have not been transferable.

IV. *THE FUTURE*

There is little doubt that the pressures to recognize and transfer graduate credit will continue. The work of opening additional graduate education opportunities to minorities, women, and older students has only begun. Proponents of academic credit for experiential learning, non-traditional locations, are certain to urge further broadening of our definitions of graduate credit and additional opportunities for transfer. The extended degree programs already in place, and

the prospect of graduate degrees being offered under the auspices of the external degree institutions will generate similar pressures.

The response to such pressures, and the changed needs of society which they reflect, must come largely from individual graduate schools, their faculties, and their deans. Decisions on graduate credit in these and other innovative areas will require sensitivity and understanding, in addition to the continuing commitment to high quality graduate education. We believe, that adherence to the minimum criteria outlined above will prove helpful to present and prospective students, as well as to graduate faculty members and their deans.

ISSUES IN INTERSTATE GRADUATE EDUCATION

Richard M. Millard

In considering issues and problems in interstate programs in graduate education it would seem only proper to take a brief look at the role of the states in graduate education, including some of the changing characteristics of the states' roles in recent years. Graduate education has frequently been thought of primarily as a national resource, and, that it is an essential national resource on which intellectual and cultural leadership, research potential, development of new knowledge, and preparation of highly educated professional and technical human resources depend is clear. At the same time, however, it is also a state and local resource. Further, it is the states which historically and constitutionally have had the primary responsibility for providing educational opportunity to their citizens. It is true that graduate education originated in this country in the private institutions and that they continue to play a crucial role in it, perhaps considerably more so than in undergraduate education. The states have, however, encouraged graduate education in private institutions through tax exemption, support of students, and in some cases direct subvention and in addition, particularly in this century, have provided progressively more graduate education in their public institutions.

During the major period of expansion of higher education in the sixties the states concentrated more specifically on meeting undergraduate needs. Not only were existing campuses enlarged but over 400 new public institutions were created. In the process the bases of institutional support for graduate education were also expanded. Institutions that had been primarily undergraduate state colleges became regional universities and as they did so they added or expanded graduate programs.

However, during this period which was also the post-Sputnik era the federal government played the predominant role in encouraging and shaping the direction of graduate program expansion. Assistantship and fellowship funds in the natural sciences were provided under the National Defense Education Act beginning in 1958, and then expanded into the social sciences later. Special programs were inaugurated under the National Science Foundation to reinforce centers of scientific excellence and to create new centers of science education on broader geographical bases. Funds for research through the National Science Foundation, the National Institutes of Health, the National Aeronautics and

Space Administration, and other federal agencies were abundant and provided money not only for research faculty and facilities but for graduate students as research assistants and fellows. On the whole the federal initiatives in graduate education complemented the state initiatives in institutional expansion. The latter provided the base on which graduate programs could be built and state as well as private institutions welcomed what appeared to be the prestige of graduate programs in an expanding market. In such an environment it is not surprising that a number of institutions with marginal capabilities also developed marginal graduate programs and other stronger institutions expanded graduate programs into areas where their major strengths did not lie.

As the sixties drew to a close the picture began to change. Although not many people took him seriously, Allan Cartter was predicting a future surplus of Ph.Ds. Federal support began to level off and in some areas drop. Both research and graduate education ceased to be top national priorities. The White House reduced the role of the science advisor and did away with key advisory committees. The period of student unrest had its impact both nationally and in the states on the confidence of the public and officials in the values of advanced education. The fiscal situation by the early seventies was becoming progressively tighter. Earl Cheit was talking about the new depression in higher education. Escalating costs, inflation, and decreasing income affected education more directly than some parts of the economy. While state appropriations in most parts of the country for higher education continued to increase they began to do so at a lower rate. The students continued to come but with the end of the draft in different proportions. Educators and state officials began to look more seriously at demographic data indicating that the bulge in 18-21 year-olds would be over the eighties and to realize what this implied for traditional higher education. In the meantime the increased number of students who were graduating in the late sixties and early seventies were moving into graduate education with corresponding increases in graduate enrollments.

With these changing conditions the states' role in graduate education became progressively more important as did state concern with what appeared to be the high cost of graduate education, and its relation to undergraduate education, and whether or not there has been or continued to be over-expansion and unwise duplication. This concern while expressed by legislators and governors tended to be focussed in statewide coordinating and governing boards and planning agencies. While these agencies obviously vary considerably in power, structure and composition, all of them have some planning responsibilities for the institutions under their aegis. It is not accidental that their major period of development coincided with the period of major expansion of higher education. In many cases their authorizing legislation specifies that they are to provide for the orderly growth at least of public education in their respective states. While they were concerned with graduate education in the sixties as it related to role and scope and to patterns of expansion to meet perceived needs, to a large extent their primary focus had to be on (1) the expansion of undergraduate education including community colleges; (2) demands for professional education, and (3) system development. Many did develop procedures for review and approval of new programs at the graduate level but there was little occasion for review and contraction of existing programs.

Today, these boards as well as the institutions are faced with new circumstances and demands. The federal situation has not improved. In the light of the current fiscal situation the states have had to retrench. Other priorities than education have become more insistent. The surpluses that existed in many of the states have diminished or disappeared. The states have become far more concerned with accountability and outcomes. A number of states either have or are initiating performance audit procedures, have established their own versions of government accounting offices and higher education or some part of it is frequently an early area for investigation.

Within higher education according to the National Center for Higher Education Statistics expected increases in enrollments this last fall did not materialize. You are well aware of the current underemployment and unemployment situation for Ph.Ds as well as the less than encouraging projections for the future made by Glenny, Froomkin, and others. Many of the state higher education agencies as well as institutions have had to look carefully at programs, even institutions, and develop effective strategies and criteria for review and curtailment of graduate programs with a view to eliminating weak and unnecessarily duplicative programs. New York, New Jersey, Washington, Kansas, Florida, and Louisiana are cases in point, although each has approached the problem somewhat differently. Under such circumstances the need for effective planning at state and institutional levels becomes crucial if retrenchment is not to result in the weakening of all programs and the kind of interinstitutional competition destructive both of quality and diversity.

The National Board on Graduate Education in its final report warned:

> *In our opinion, it would be a serious mistake if students, faculty, departmental heads, university administrators, state and federal agencies, and private foundations ignored or dismissed these projections. Responsible action and planning must be started now if the potential human costs . . . are to be reduced. In particular, if universities drift through the next four or five years in the hope that something unforeseen will brighten the picture, we foresee a wrenching and extremely damaging downward adjustment in the 1980s that could be minimized by careful planning and action now.*[1]

Even before the final report of the National Board, the task force of the Education Commission of the States on Graduate Education had urged that:

> The states in cooperation with the universities have the responsibility to help insure that graduate resources within the state are utilized as efficiently and effectively as possible to provide diversity, access and quality of graduate education both public and private.[2]

The states in cooperation with the institutions should exercise this responsibility, the report went on to insist, through balanced planning emphasizing complementation and diversification of programs including reducing duplication, elimination of some programs, consolidation, and reinforcing quality and unique resources where they exist. The National Board reinforced the recommendation of the task force by saying:

> We urge each state to develop explicit policies to support graduate programs of established quality, including support of such programs in private univer-

sities. State support at the graduate level should be selective and conditional upon careful evaluation of program quality and public purpose served.[3]

But the question before the panel is issues in interstate graduate education, not state responsibilities. What I would like to suggest is that the issues in interstate graduate education are directly related to the issues of intrastate graduate education, in fact grow out of them, but without as clear a focus of concern or focus for planning and operational control as within states. To a far greater extent than undergraduate education, graduate education has always been an interstate issue even though the institutions offering graduate education are within states. This is one reason for frequently considering graduate education primarily as a national resource. Graduate students are more mobile than other students. Graduate students from Massachusetts and California are spread across the nation. Even from the standpoint of state planning for graduate education not only is what happens in an adjacent state directly relevant but the comparative resources of the individual states come into play, and the need for regional approaches to utilization of resources is frequently as important as the resources or the lack of them in particular states. The need for interstate as well as statewide planning for graduate education has become progressively more important. While the mechanism or structure for this is not as clear cut as within the states and the problems of state sovereignty to some extent get in the way, the states themselves are recognizing far more clearly than in the past the need for such cooperative planning. This is not to say that such interstate planning is new or is not now taking place. You are well aware that the three existing regional higher education compacts have been involved in graduate student exchange almost from their beginnings: The Southern Regional Education Board since 1948, the Western Interstate Commission for Higher Education since 1951, and the New England Board of Higher Education since 1955. The Southern Regional Education Board in particular has recently developed its common market in part patterned after the New England Board approach and in addition has published its catalogue of uncommon facilities. In September of this year the Southern Regional Education Board published a statement of *Priorities for Postsecondary Education in the South* and among these priorities included:

> Graduate and professional education of high quality must remain a priority of particular importance in the South with special concern both for the improved representation of women and minorities and for selective retrenchment in over-expanded fields.[4]

The Southern Regional Education Board report continues:

> The long-term public interest requires careful evaluations, selective retrenchment where necessary, protection of quality, and planned control of future growth.[5]

The Education Commission of the States task force included among its recommendations the following:

> *Regional planning and sharing among states in the use of resources in graduate (and professional) education and research are essential.* The major programs in graduate student exchange existing in regional compacts . . . should be supported and further encouraged. New ways should be found to

strengthen those existing compacts. However, *particularly in those states not within a regional compact, legislators should consider authorizing the state higher or postsecondary education agencies—in cooperation with institutions and their counterparts in adjacent states—to engage in common planning with neighboring states in developing the regional potentials for graduate education and research.* Wasteful duplication among states of high-cost programs and research facilities . . . cannot be justified to taxpayers or legislators. Many programs and research facilities can be developed far more effectively on regional bases through shared costs than individually by states, thus enhancing quality and reducing costs.[6]

If it is funded, the new section 1203 (c) of the Amendments of 1976 which authorizes grants to state commissions, or, interstate regional compacts in cooperation with state commissions, for planning, developing and carrying out interstate projects in postsecondary education may encourage additional or reinforce current interstate developments in graduate education. Currently in addition to participation in regional compacts at least 19 states participate in some form of interstate institutionalized cooperative programs.

You are well aware and the other panelists have discussed some of the problems related to the development of external degrees and off-campus programs in graduate education. Many of these undoubtedly are motivated by a sincere interest in diversifying graduate educational opportunity. However, given present and what undoubtedly will be increasing competition for students and for funds plus the issues of quality control when these are operated on an interstate basis whether offered to civilians or to military personnel, they can raise major problems both for institutions and state higher education agencies. These problems are not unique to the graduate level. The time may well be approaching when accrediting agencies will need to develop special criteria and separate recognition for off-campus programs including the constellation of institutions operating on military bases. At a more fundamental level some states have taken action to require registration of agents of institutions operating from out-of-state to try to insure that at least minimum standards of probity if not full educational quality are met. This is an area in which more effective interstate planning, exchange of information, and even reciprocity agreements may be called for. Again, this also fits into the general need for more effective interstate as well as statewide planning, coordination of efforts, and programmatic reinforcement in graduate education.

Given the present situation and the less than optimistic projections for the future, if the critically important state and national resources for graduate education and research are to be husbanded wisely to preserve and even increase quality and to provide the diversity essential to the changing needs of citizens and the nation, it seems clear that effective and cooperative planning on state levels involving state agencies and institutions is essential. Such planning must take into account both public and private institutions and realistically face the necessity for reasonable retrenchment, but in doing so the planners should keep in mind and reinforce the quality, strength, and the unique capabilities of particular institutions, as well as the necessity of meeting emergency new needs. Statewide planning is basic, but, if such planning is indeed to be effective in producing a leaner but strengthened graduate educa-

tion and research capability for the nation commensurate with needs, it must be extended to planning among states as well as planning within states. The states in cooperation with their institutions must take the initiative through regional compacts and/or other interstate agreements to insure that this is done and done now.

REFERENCES

1. Outlook and Opportunities for Graduate Education, Washington, D.C.: National Board of Education, 1975 pp. 35-36.
2. The States & Graduate Education, Denver: Education Commission of the States, 1975, p.2.
3. *Ibid.*, p. 56.
4. *Priorities for Postsecondary Education in the South.* Atlanta: Southern Region Education Board, 1976. p. v.
5. *Ibid.*, p. 56.
6. *Op. cit.*, p. 7-8.

Luncheon

Wednesday, December 8, 1976, 12:30 p.m.—2:30 p.m.
Chairman: Sanford S. Elberg, *University of California, Berkeley*
Presentation of Gustave O. Arlt Award in the Humanities
Guest Speaker: Mary F. Berry
Chancellor
University of Colorado

Sanford S. Elberg

Before we begin the luncheon ceremonies, I would like to take this opportunity to introduce the current members of the Executive Committee, who are seated at the table: Dean Spriestersbach, Provost Robert Johnson, Dean Margaret Perry, Dean Joe Gerber, Vice President Michael Pelczar, Dean Dan Zaffarano, Dean Donald White, Dean Shirley Spragg, Dean Robert Kruh, and Vice President Chester McKee. There are also a bevy of former members of the Executive Committee seated in the audience.

The first part of the luncheon is always devoted to the presentation of the Gustave O. Arlt Award. This year, Professor Richard Stevens of Boston College is the recipient of the award.

Professor Stevens was born in Cambridge, Massachusetts. He received his M.A. at Weston College and was an instructor in philosophy at Holy Cross College. He was ordained in 1965 and earned the licentiate in theology at the Louvain the same year. He studies philosophy under Professor Paul Ricoeur and received the doctorate from the University of Paris in 1971. His book, *James and Husserl: The Foundations of Meaning,* was published in 1974. He is currently teaching at Boston College.

The committee of the Council of Graduate Schools which screened the nominees this year has written as follows:

> "Professor Stevens' book is a comparative study of a leading American thinker and foremost continental philosopher of this century. William James is famous as the major force in the acceptance of pragmatism in the academic world and is well known for his writings and lectures in psychology as well as for his work as a philosopher. Edmund Husserl, on the other hand, is a systematic thinker who has contributed profoundly to phenomenology and theory of knowledge. Of considerable interest in himself, he is also important for his influence in Heidegger, Sartre, and European existentialists. Much of the merit of Professor Stevens' book lies in his interrelating such significant strands of European and American philosophical research.
>
> Professor Stevens explores in detail the striking similarity between Husserl's focus on the importance of the lived world and James' emphasis on the

world of pure experience. He notes a number of points of convergence between the philosophies of James and Husserl while recognizing and clarifying certain basic differences in methodology and in intent of the two. The result is a suggestive, fresh interpretation of both James' Radical Empiricism and Husserl's Phenomenology.

The referees who recommended that the Gustave O. Arlt Award be bestowed on Professor Stevens noted that he brings to his work skill in textual analysis and a fine sense of historical scholarship. At the same time, he has a strong command of philosophical issues and can relate his material to the major traditions. His work is exceptional in being both imaginatively original and critically sound."

Professor Stevens, if you would come forward, there is a concrete and symbolic award which we would like to bestow upon you. One which you may use and one which you may hang.

Richard M. Stevens

I would like to thank Dean Elberg for the extravagant introduction and also Dr. Page, who notified me a few weeks ago that I had won this award. Needless to say, I am delighted to be so honored by such an august body. I am particularly honored now that I have had the opportunity to meet Dr. Gustave Arlt.

I am going to tell a brief anecdote that has something to do with William James. James always stressed that philosophy should be close to the people. It should be something that enhances the everyday life of the average citizen.

I think he would be pleased by a recent advertisement which appeared in *Jobs in Philosophy*, a publication of the American Philosophical Association. The following position was offered—I believe in Boulder, Colorado. The sheriff's office advertised for an assistant sheriff, and the following qualifications were noted: the individual should buy his or her own boots and pistol, (that is an affirmative-action employer); secondly, the individual should have Ph.D. in Philosophy in hand; thirdly, the person should be preferably expert in the field of classical or early philosophy since they already had an ancient philosopher and a contemporary one. Plato always said that the leader of the nation should be a philosopher. I think it is characteristically American and pragmatic that we should look forward to a generation of policemen philosophers. Thank you.

Sanford S. Elberg

I will ask now our founder and former president, Dr. Gustave Arlt, to say a few words and also announce the subject of the discipline from which next year's awardee will be selected.

Gustave O. Arlt

I am grateful for the opportunity once more to express my great appreciation to the Council of Graduate Schools for establishing this award in my name. I want to congratulate particularly, of course, the recipient with whom I had the opportunity to speak with at some length this morning. We have been very fortunate throughout the past five years to have selected very deserving recipients of this award. Each year the Council has given me not only the responsibility but particularly the honor of choosing the area in which the next award is to be given. As you know, the title of the award indicates that it is to be in the field of humanities. We had decided from the very beginning that since the humanities is such a broad field it would be almost impossible for the committee to read the entire output of publications in this field over a period of years. Thus, we have limited the area each year. Next year, I should like to recommend to the Council that the award be made in the field which I would like to have chosen at the very beginning, partly because it was my own field of study to some extent—i.e. the field of folklore and mythology. I did not think, at the time, that it would be appropriate for me to choose a field in which I was personally interested.

Folklore and mythology have been increasing fields of study in American universities for the past ten or fifteen years. Until recently, only master's degrees were awarded in this area. However, in the past ten years, doctor's degrees have been awarded. And so, depending upon the approval of the Executive Committee of the Council of Graduate Schools, I would like to recommend the field of folklore and mythology. Thank you.

Sanford S. Elberg

The speaker for our luncheon is Mary Frances Berry. She did her undergraduate work at Howard University and received a doctorate in history from the University of Michigan. The subject of her dissertation was The Negro Soldier Movement and the Adoption of National Conscription. After obtaining the doctorate in 1966, Dr. Berry sandwiched in the study of law at the University of Michigan Law School and obtained the J.D. degree in 1970. She is a member of the bar of the District of Columbia. She has had a traditional academic career starting with an appointment as a teaching fellow and moving to assistant professor, associate professor and professor. She has served as acting director and director of the Afro-American Studies program at the University of Maryland and also an interim chairman of the Division of Behavioral and Social Sciences at the University of Maryland. In 1974, Dr. Berry became provost of the Division of Behaviorial and Social Sciences at the University of Maryland. In 1976, she came to Boulder as Chancellor of the University of Colorado and as a professor of history. Her background represents a wide range of historical interest and activities connected with a typical academic life, one that is exceptionally sensitive to changes in social institutions. We are honored to have Dr. Berry accept our invitation to speak, and it is with great pleasure that I present to you Dr. Mary Frances Berry. Dr. Berry.

CURRENT ISSUES IN GRADUATE EDUCATION

Mary F. Berry

Graduate education as we know it provides a series of benefits to society; it is the training of new scholars; it is creative work; it is modern science in the making; and it is the teaching and certification of professionals. In general, graduate school is the major institutional setting for society's pursuit of new knowledge. In this decade each of these benefits to society has been challenged more than in the past, and one significant sign of our times is an economic austerity that threatens the very existence of graduate education.

I intend to discuss some current issues in graduate education from an historical standpoint. In considering the brief outlines of the history of graduate schools in America, I think we can grasp more firmly the significant issues of the present. There are issues that are political and economic but also others that are rather technical—like the distinction between basic research and applied research.

We at the University of Colorado at Boulder are celebrating our centennial in this year of 1976 as we celebrate the nation's 200th birthday. But there is a less heralded centennial this year which we should do more than note in passing. In 1876 the first American institution dedicated to graduate education was established at the Johns Hopkins University. It began with the borrowed German techniques of the seminar, the lecture, the close association of scientists and students and adapted also the concept of "academic freedom" that has played so influential a role in growing scholarly and scientific traditions. This is not to say that there were not Ph.D.s awarded before that time. In fact, the first Ph.D. was awarded at Yale University in 1861, and it was awarded as we do today on the basis of residence, a comprehensive exam, and a thesis. But the institutional organization of graduate education came first, in 1876 at Johns Hopkins.

Graduate education grew enormously over the next few years. By 1914 when the AAUP was formed, doctorates were being awarded in more than twenty-six states. It is not exaggeration to say, as did Walter P. Metzger in his work, *The Development of Academic Freedom in the United States*, that American higher education underwent a revolution following the war years of 1861-1865.

In large part, that revolution was based upon the growth and development of traditions of graduate education within the universities. It was a revolution in which higher education shifted inherently in its direction from functioning as a *conserver* of knowledge to becoming a center for *searching* for new knowledge. Professors become not only teachers of the next generation, but also creators and researchers who produced the very knowledge they transmitted as teachers. It was a revolution at the core of the American university and the source of American technological-scientific growth and marked the emergence of American leadership in science and graduate education.

That leadership was not achieved, however, without another series of developments in higher education beginning with the Second World War and continuing through the 1960s. The war and U.S. defense posture that followed it did much to shape the economics of graduate education. Out of those economic concerns research and scholarly institutional complexes of great size and

greater diversity emerged. Just as the first revolution in higher education was distinguished by the turn in direction from conserving to searching for new knowledge, the development of graduate education after the World War II years has had as its most salient feature a dependency upon governments for funds to support graduate education. Today we live with newer traditions in which the government's stake in graduate education is not only very commanding, but in some sense, borders on domination.

The issues currently before us in graduate education grow out of these basic realities of our history. *Our traditions* inform us that our business as scholars and university educators is both to teach and prepare those who come after us and—no less important—to search for new knowledge, to do original research or creative work. *The facts of life* tell us that much of the financial support for this activity must come from state governments and the federal government. The public sometimes does not understand that we cannot teach research skills unless we are *engaged* in actual research.

The public also does not seem to understand that undergraduates who are exposed to professors who are engaged actively in graduate training and research receive the best possible education for their own future graduate or professional school education. At the same time research and creative work, whether in science or in the arts or the humanities, is important in its own right. Therefore, when I speak about issues in academic research, I hope you will keep in mind that these questions also have implications for teaching new scholars and, of course, for the teaching of undergraduates as well.

The issues that derive from the ferment and financial pressures of recent years have caused educators to begin to reconsider many of the old assumptions with respect to graduate education. For example:

- Are the attitudes of Americans toward graduate education an expression of a new anti-intellectualism abroad in the land?
- Will federal funds in support of graduate education decline in the years ahead or have we hit bottom? On the other hand, does more federal aid mean more control over graduate education?
- Do we need a comprehensive federal policy for higher education in order to continue to provide high quality graduate training and to carry out long-term research programs?
- What can universities do to ameliorate present economic conditions for themselves and for their graduates with advanced degrees?

Underlying such questions, I believe, is the conflict that arises from the need of scholars to control every aspect of teaching and research as against the imperative of the people and their political representatives who argue increasingly that "those who pay the fiddler should call the tune?"

Some say the remedy for our troubles is to achieve a national policy for higher education: a policy that will put a floor under the level of support for research and graduate educational grants along with everything else in higher education. Others argue for a system of federally supported universities and for greater planning and coordination of effort among universities.

These issues may well point toward solutions, but we ought not to miss the crucial point. These issues are essentially and intrinsically political as well as educational and scholarly and scientific, and may have little to do with the best

approach to sustaining the scholarly efforts of our students and faculty in the universities where they are. Recognizing this fact of life puts a different frame around our common problems and should help remind us of our collective as well as individual responsibility to advance graduate education in general.

The politics we most need at the present time is a politics of advocacy of the timeless values of education, of scientific research, scholarly achievement, freedom of inquiry—the very American values contained in our system of graduate education. This advocacy we should take unabashedly into the legislatures, funding agencies, to the public and to any place where we are permitted a forum. This is also a good time as W. D. Carey said in an editorial in *Science* this past August

> ". . . for a politics of reason. It has been in fashion to parade the costly failures of knowledge. Too little has been said of its indispensability . . ."

Because graduate education is difficult, costly and complex, a series of doubts has emerged in recent years in the public's mind, especially about the distinction between so-called "basic research" and "applied research" as done by faculty and students. The public wonders, is "basic research" worth so much investment of tax dollars? What is it good for? Should we not invest instead in something with a problem-centered "pay-off," something like "applied research"? Cannot graduate and undergraduate students be trained just as well by using practical problem-oriented research as by focusing on theoretical, original work? More generally, the public has been asking whether the knowledge sought with tax dollars cannot be made more *relevant*. Can the scholar and the researcher be held more accountable for what he or she achieves with the taxpayers' money?

This kind of issue is troublesome perhaps because it makes **too much** of the distinction between basic and applied research. William Bevan editorialized in *Science* in 1972 that "Research is research is research . . . that to dichotomize scientific research into pure and applied is to reify a specious distinction." Bevan meant that all scientific research is problem-centered and in this sense the distinction breakds down. But I do not think we can accomplish very much by denying the distinction altogether; we may do more harm than good if we take such an approach.

Recently, university scientists and others have been less apologetic than during the Nixon years about "basic research" and the results so far are encouraging. What people wanted to forget until very recently, when some vociferous scholars and scientists began to get through to them, is that applied research and basic research are *compensatory* each to the other and to good teaching—that without long-term, stable commitments to basic research there can be nothing in the well to draw from to conduct applied research. Also, unless students are accustomed to and exposed to theoretical research, they will not be trained to be our basic or applied researchers of the future.

We may be just emerging from a period of deep turmoil with respect to such issues as the supposed dichotomy between basic research and applied research. Recent testimony in hearings of the Congress, statements in the media by politicians, including the President-elect, and funding shifts indicate that the assault upon basic research may be successfully repelled. This is a good sign that the best way to meet adversity is to defeat it. I believe that the scholars and the

scientists in our universities ought to speak aggressively and forthrightly for the great values of learning and discovering both for **its own sake** and for teaching these values to students.

The climate since the late '60s may have been influenced by anti-intellectual forces in the collective psyche, and if this is so, the best remedy is to confront such tendencies, expose them, and resist them. American tradition is **also** the tradition of individual achievement, diversity, invention, progress, and a disciplined pragmatism. These can serve us as we reassert our traditional worth and the absolute necessity that we not only have funds enough to research, learn, and teach in graduate education, but also to decide **what it is we** will investigate and **how** we shall organize our pursuit of learning.

The politics of graduate education must also include intelligent sensitivity to other issues that concern and confuse the public. I have in mind particularly the impact of graduate departments upon undergraduate teaching and the impact of higher education generally on the local community of which it is a part—what we call "town and gown" issues.

Graduate scholarship and education enrich undergraduate teaching. They produce a professor who is more knowledgeable about advances in his field, and provide professors with research and teaching assistants who permit them to spend more *quality* time with undergraduates. The teaching assistants themselves convey to the students the sense of excitement and respect for learning that evolves from being part of an enterprise devoted to organizing and funding new knowledge for the benefit of humankind. We need to be more confident in presenting these facts to the public.

In addition, the university today has to recognize that it **is** a vital part of its local community. It is wrong for universities to isolate themselves from communities where their involvement can be mutually beneficial. Graduate departments seems to be waking up to these realities. For example, one university's East Asian studies program found recently that funds to conduct graduate Chinese course could be obtained by involving the local Chinese-American community in auctioning-off paintings to help support their programs. This is a welcome change in attitude toward the community on the part of the university people that would have, perhaps, been more welcomed by the community if it had occurred before a funding crisis.

But at another major university in a large city, we can see a different example: its urban institute has traditionally had little or nothing to do with the active reformers who are responsible for every worthwhile reform in the city. Potentially significant sources of support for research and teaching have never been identified or approached. The problem solvers in the institute go about their work without ever touching base with those local people who know how problems have been solved; no bridges have been built between the urban institute's faculty and the people concerned with the realities of the city.

This situation should never occur. The general lesson for graduate education is that we must be **adventuresome** if we are to preserve and promote our own futures. We must be aware of resources available in our communities and we must reach out to the community and aggressively provide the services that education can provide.

Enrollments and placement opportunities are two major and related issues

in graduate education today. We have been living through a period in this decade in which diminished prospects for job placement of many graduates with advanced degrees has led to some hard times for graduates and for departments in terms of decreased revenues and enrollments. What should be the response of graduate enrollments to fewer placement opportunities? Should we admit and train fewer people if we anticipate fewer future jobs? Does graduate training make sense without a promise of eventual placement in the field?

In 1972 when job prospects in many sciences looked terribly bleak, a national study examined the impact of the facts of job scarcity upon graduate enrollment in the field of physics. The author found that the **perception** by students of adverse economic prospects was lowering the numbers of students entering physics and that fewer students clearly meant fewer Ph.D.s in the short term. Thus, the students own perceptions led to a tapering-off of Ph.D.s in the field. So it appeared that the **perception** of fewer jobs **alone** reduced demand for advanced degrees—a good indication that decision-makers should not precipitate more dramatic reductions than necessary by trying to choke off demand artifically by other means.

But it is not simple in any sense to resolve the problems posed by enrollments.

The quality and size of enrollments are crucial in graduate education. As enrollments go so go budgets, the fortunes of faculties and research programs. Good students are essential in support of good faculty research and creative work. Hidden within enrollments are the key questions about educational standards, about admissions policies, about affirmative action for women and minorities and about the priorities we assign to differing fields of study. For example, how much should we pay for fine arts? For physics? For public administration?

I believe that we should always try to be responsive, to anticipate the direction of student desires and demand, and national needs, consistent with **our best academic** judgement. In no case should those who govern universities or those who control funds to universities put themselves in a position of closing off fields of study and investigation only because that endeavor seems to lack relevance to currently proclaimed national needs. Our history reminds us that what is in the national interest in the short term may prove ephemeral in the long run.

And, if we are a people who believe the value of individual initiative, we ought to support the person who boldly seeks his or her own direction. That may mean that we will be awarding the Ph.D. degree to men and women who know that they may find no salaried work in their field of specialization in the short run—people who may knowingly wait tables to earn their daily bread but who pursue their interests nonetheless. I do not think we want to create conditions in which people no longer have this kind of choice. But we must make sure that students who choose to enter any field are aware of the career prospects and are counseled adequately before they make that choice.

Those who seek graduate educational opportunities must have it extended to them on an equal basis, regardless of race, sex or any criteria unrelated to merit and potential. The rigidity of our institutions and the hostility of our educational traditions toward particular segments of the population has still not been overcome completely. There exists a continuing disparity in enrollments in graduate education disproportionately impacting on minorities and women

which cannot be explained by the merit distinction. We can do better in higher education; I am at a loss to explain fully why we do not do better.

The furor over special financial assistance for minorities in particular is an example of where we can do better. Misunderstandings have grown up about this: some ask why minorities should be treated any differently than other disadvantaged groups. But the facts—seemingly forgotten lately by some courts—are that minorities, in particular Spanish surnamed individuals and blacks, have been the victims in the past of unconstitutional discrimination based on race or ethnicity. This is not just a case of being economically disadvantaged; it is not enough to be "color blind" if those who have been denied their legal rights are to find redress now and in the future. Poor whites, for example, may be economically disadvantaged and there must be special financial programs to aid them to obtain education. But whatever caused this condition, it did not result from illegal, unconstitutional discrimination. That is a major difference. During the Ford administration, many institutions in our society have become inreasingly insensitive to this difference. Perhaps the Carter administration will not stand idly by as this insensitivity persists. Those of us in higher education should do our best to implement financial support programs based on merit, financial support programs based on economic disadvantages for all races and sexes, and programs designed to relieve any disadvantages experienced as a result of illegal race discrimination.

I believe graduate education for all students and faculty has seen the worst of economic conditions; of public misunderstanding of its importance; and confusion about the ways in which opportunity can be provided for men and women, minorities and non-minorities—all who can contribute to new knowledge and can benefit from training to engage in its transmission and creation. Believing in the best of graduate education, we will reverse recent trends completely in the years ahead.

Second Plenary Session

Wednesday, December 8, 1976, 2:30 p.m.-5:00 p.m.

GRADUATE MANPOWER

Chairman: Donald J. White, *Boston College*
Moderator: William C. Kelley, *Commission on Human Resources, National Research Council*
Stephen Dresch, *Institute for Demographic and Economic Studies, Inc.*
Neal Rosenthal, *U.S. Bureau of Labor Statistics*
Robert M. Bock, *University of Wisonsin, Madison*

Donald J. White

I am pleased to have the opportunity to chair this session on Graduate Womanpower and Graduate Manpower. Your program booklet uses the short expression "Graduate Manpower," but of course we all know that the program committee used that abbreviated title in its historic generic sense to include both genders.

Ladies and Gentlemen, this is *not* a wake, despite the lugubrious connotations of certain catchy phrases now sweeping the country. Such phrases include, "America's Ph.D.'s: A New Class of Migrants," and "The Overeducated American." The last is the title of a stimulating new book by Professor Richard B. Freeman of Harvard University. One should have wished that Professor Freeman had chosen a title more nearly descriptive of the superlative research he has accomplished on graduate manpower in the United States.

To be sure, the careful analysis of employment and supply trends, and the careful estimation of "internal rates of return" on the human capital involved, do suggest that those interested in graduate education must of necessity have in mind possible ways of expanding and restructuring markets. But this is a far cry from justifying the conclusion that we are, indeed, in the age of the "overeducated American." To Professor Freeman's credit, he carefully delimits the application of his work and by no means suggests either that education for itself is not a good thing or that there do not remain very satisfying careers prepared for through graduate education, even though the *differential* return may not be what it has been in the past. More's the pity that the public at large may not appreciate such sophisticated distinctions.

That is why all of us must be greatly concerned with the subject about which we are to hear today from our panel of experts. *The future will be what we make of it,* and one of the principal ingredients in making the most of it certainly consists in learning all we can as deans from experts on the subject before us today.

Dr. William C. Kelley, Executive Director of the National Research Council's Commission on Human Resources, is a successful and distinguished physicist. For some years now he has been also a leading student of the even more difficult subject of high level manpower and womanpower development, allocation and utilization. Dr. Kelley is going to talk with us about projections. It gives me great pleasure to introduce him to you now.

William C. Kelley

My role here this morning is to offer some introductory remarks and observations to set the stage for the speakers who will follow. My comments will be directed principally to projections of doctoral supply and demand and their uses. This about an anxiety-ridden a topic, as one can imagine, in graduate education these days. What we are really talking about is our human desire to know the future; however, we may phrase that and here I remind you, with some uneasiness, that the ancestry of this goes back to the activities of those mysterious figures, who were regarded with awe by their contemporaries soothsayers, diviners and prophets. To my knowledge, none of the projectors who are now active follow a practice of inhaling the volcanic gases to induce a trance in which their mutterings as interpreted by the civil priesthood will foresee the future for their contemporaries. The present day practioners are concerned with projections and not predictions. They are concerned with modeling the trends of the past in an attempt to draw inferences from them about the future.

Now let me come to the substance of my remarks which bears upon the issues of national policy. There are many of them and they are important. There is the question of the vitality of research and scholarship and the sufficiency of people who will be researchers and scholars. There is the question of the recognition and fulfillment of individual aspirations—those who seek advanced degrees and there is the question of institutional development or retrenchment. All these are very much in the forefront these days and underlie our concern for trying to estimate future trends.

The approaches to national policy concerning these issues are several. Here I refer you to the report of the National Borad on Graduate Education published in 1973 entitled *Doctoral Manpower Forecast and Policy*. The National Board saw three ways of approaching these questions. One was through manpower planning, be it national or regional. Another was through human capital analysis which considers the individual return on investment in education. Third, there is the approach that uses free student choice coupled, as the Graduate Board added, with the provision of adequate market information as to performance in the market. The National Board examined these three possibilities and opted for the third—free student choice coupled with the provision of adequate market information. They did this on the basis that they believed that manpower planning overlooks mobility and flexibility of utilization.

The National Board summed up pretty much its views about the approach to

these matters in the following quotation, "graduate education is more than investment in human capital, more than a means to train people for specific jobs. Although it includes both, graduate education is a process of human development for those who are capable and are motivated." Other people may come to different conclusions about this matter and have different views. However, I would guess that if we were to talk to some of the unemployed Ph.D.'s or some who consider themselves underemployed, they might take a different view.

My personal feeling about this is that free choice on the basis of adequate information is a good mechanism even though it has certain shortcomings. What are the motivations for making projections for the future? Freeman and Breneman in their report to the National Board on Graduate Education in 1974 entitled, *Forecasting the Labor Market: Pitfalls and Policy*, pointed to three reasons for making projections which they considered highly valid. The first of these was a tool for evaluating governmental policies. For example, One can vary the conditions and study the possible consequences of policy change such as scholarship or other kinds of student support. The second valid use, in their opinion, was an early warning system which may reduce adjustment problems in the future, and finally a diagnostic device to direct attention to market problems which may be beyond the purview of individual decision makers. Less valid or invalid, in the opinion of these people were the following. First, manpower planning to balance supply and demand. They felt that it was an illusory goal. Secondly, to provide information to guidance counselors, faculty and students. They thought that was difficult to achieve. Thirdly, to allocate educational slots in college courses. They felt that that was not a suitable use for projections.

Let me turn now to some of the methodologies that they used as part of this review. First, one that is probably most often used and most often referred to is called a method of fixed coefficient projections of supply and demand. These start usually with demographic facts; i.e., the population and age groups and go on to consider very significant ratios such as the percentage of the population that enters college and receives a bachelor's degree and the percentage that continues into graduate school and the percentage that will eventually graduate with a doctoral degree. These projections are highly sensitive to the assumption that underlie them. They also depend upon the stability of the coefficients that are used to project numbers from one educational level to another. As a result, the people who make these studies usually give alternative projections in which they vary the assumptions somewhat to see what the consequences are and the results. Occasionally, where they can, they use what they call market models in this technique. They put emphasis on factors that would seem to indicate how the principal performers are acting, the students who decide to go on to graduate study, employers and so forth. The second of the methodologies used is based on the input-output model of the economy. These are projections of employment levels all based on the assumptions of how the economy will move. Another approach is the human capital analysis that I mentioned earlier. To the extent possible, researchers are attempting to modify these approaches by including analysis of the market response of individuals and firms. I think it is fair to say that only to a limited extent has this been possible so far. It represents a direction in which there is great interest.

One of the principal reasons why it is so difficult to carry out is the fact that data are hard to come by on individual behavior in the market.

Most of these studies I mentioned have dealt with projecting supply and demand of Ph.D.'s. I know of very few that deal with master's degrees and master's degrees projections. I hope in the future much more attention will be paid with the master's projections. Finally, all of the methods are highly sensitive and dependent on data sources. I mentioned some of the difficulties there. Here I think there is very great need to improve the basic data banks from which studies of this kind can be made. The difficulty is that these are usually very expensive procedures. They involve obtaining information from individuals with the possible consequences of invasion of privacy. Nevertheless without the date, the models cannot be developed.

Who are performers in this arena? I think you know the National Science Foundation has been one of the principal organizations studying projections in supply and demand for doctoral scientists and engineers, and they have projected their results to 1985. They have an established model of national projections and use the fixed coefficient method. They have a market response model also, which places heavier emphasis over what has happened over the last few years. The report biannually on these studies and the next report will be made in 1977. The Bureau of Labor Statistics also makes projections in Ph.D. manpower including all fields not just science and engineering. They use the input-output model that I have referred to. The U.S. Office of Education also makes projections in the supply of Ph.D.'s. A very noteable report, made by the late Dr. Allan Cartter, studied academic supply and demand particularly for a young faculty. His book published in 1976 is one of the landmarks. Professional societies and other agencies have also published studies. What are the results of these studies? The National Board on Graduate Education in the report that I mentioned earlier made some comments which I think are still valid, that is, of the market phenomena—academic demand, non-academic demand and supply—one can be confident really of only the projections of academic demand. The reason I think you understand. There are a number of technical reasons why it is difficult to get demand data from a non-academic sector and these have to do with proprietary information. As far as supply is concerned, it is an area which is highly sensitive to the perceptions of the market or availability of jobs and as I mentioned earlier, data on behavior in the market are lacking.

Academic demand which has been carefully studied by Allan Cartter and others—can be described quite well and projected reasonably because it is heavily conditioned by demographic trends, particularly enrollment data in the undergraduate levels. A second comment made by the National Board was the need for system monitoring—the need to put more quality in the questions that were under study. Finally, I think that it should be noted that the federal government places too much stress on the immediate state of the market. This overlooks the educational lag and places too much emphasis on the short term fluctuations of the market. A question one might ask in considering the results of these studies is what their relationship has been through policy decisions. Here the picture is very mixed. It is clear that some major policy decisions indeed were heavily influenced by perceptions of the future supply and de-

mand of graduate manpower. But in many other instances the connection has been rather mixed. One new development in this connection you may wish to note is that as part of the National Research Act 1974, Congress called on the Secretary of HEW to ask the National Academy of Sciences to make a study of national needs for biomedical and behaviorial research personnel. This study has been in progress for several years. I believe you have seen some of the reports. The study does use more or less short-term projections as one of the bases for its recommendations about training levels—the training levels that are recommended to the National Institutes of Health, Alcohol and Drug Abuse and Mental Health. In addition, there are a number of technical shortcomings that one notes about the projections that are made at present. For one, field differences usually are not taken into account, that is mainly because the data are often in aggregated form. Yet we know very well that the supply and demand situation for physical scientists is quite different from people in education or individuals in the humanities. We need then to disaggregate the data on a field by field basis. Another factor that needs further attention is the very large number of graduate students and doctoral recipients who are foreign citizens, many of whom return to their countries. We need to make a distinction based on that fact. Then there are discrepancies that probably one notices working from the same data source with different organizations and coming out with different projections. Perhaps when one thinks further it may not be such a bad thing to represent fairly the uncertainty that underlies these projections and the differences in the results.

In summary, it seems to me that there already exists a large variety of projections. I believe they will continue to be made and should be made. I do not want to be negative on the desirability of having such information available. I think there should be such projections. I believe that their relevance to the real world will vary enormously, as you have already seen. We should be rather modest and recognize that even though we do not understand completely doctoral manpower, it is a part of a very large system that itself is not very well understood and is hard to regulate. We do not have in doctoral human resource and manpower a small enclave that behaves anonymously. Many of the questions of labor supply and demand are very difficult indeed to handle, and the labor market is a very hard one to know.

Donald J. White

Our next speaker is Dr. Stephen P. Dresch, who is the Director of Research, Institute for Demographic and Economic Studies; Research Associate, National Bureau of Economic Research; and of Yale University's Institution for Social and Policy Studies. Dr. Dresch started his career doing research on the economics of urban local government. Fortunately for us, he has become interested in the economics of higher education. He will talk today about human capital aspects of graduate womanpower and manpower under the title, "Perspectives on Graduate Education and the Labor Market." I am pleased to introduce to you Dr. Stephen P. Dresch.

PERSPECTIVES ON GRADUATE EDUCATION AND THE LABOR MARKET

Stephen P. Dresch

I must admit to a rather intimidated response to the title of this session. The very word *manpower* must conjure in the mind of any right-thinking, scholarly person (and certainly graduate deans and erstwhile economists must be included in that class) the vision of an impersonal bureaucracy unceasingly moving chessmen on a board, ever seeking to maintain a mythical balance between a set of mythically available quantities and an equally mythical set of requirements. Bureaucracy, balance, quantity, requirement, availability, . . . almost every image incorporated in that vision is sufficient to arouse a strong skepticism, if not dread and horror.

Unless this vision is to persist and at least implicitly and covertly color and bias our discussions, it is imperative at the outset to develop a more appropriate (if ultimately not more congenial) frame of reference. The one within which I will attempt to structure my remarks, but which I will neither attempt to impose upon nor attribute to my fellow panelists, has at its center a perception of labor market developments as these have influenced in the past, and will continue to impinge upon, the evolution of graduate education.

The first occasion on which I ventured to speculate on the rich topic of the evolution of graduate education was momentous for my career, whatever the momentousness of my contribution to our understanding of the processes of historical development. One consequence of the less than unanimous acclaim (or even sufferance) which I enjoyed on that occasion was the externally proposed (I will not say imposed) modification of the title of a short monograph which I had prepared, from *Perspectives on. . .* to *An Economic Perspective on the Evolution of Graduate Education* (Washington, D. C.: National Board on Graduate Education, 1974). Now, I am devoted to my titles, more perhaps than to the texts which they accompany, and I brooded in deep depression over this event for some time, realizing finally, almost in a moment of sartori, one sure course of action by which I might avoid a future repetition of such an uncomfortable, ego-shattering blow. The solution, simply, was to cease to be an economist. Thus, at an Emory University lecture series honoring the memory of a predecessor who had the misfortune while at Yale of devoting himself to the study of education (the education department was abolished during his, abruptly terminated, tenure), I announced that I no longer considered myself an economist and proceeded to symbolically burn my membership card in the American Economic Association. For want of a better, i.e., less descriptive, identification (and the demand for even nondescript identifying labels is, if anything, stronger than the demand for PhDs in 1965), I proclaimed myself a "social demographer."

First, how does what I would characterize as a labor market perspective differ from that which we commonly associate with a manpower, or manpower planning, perspective?

The most important distinction resides in the explicit representation of pro-

cesses of adaptive behavior within the labor market perspective. The typical manpower approach might be briefly, if perhaps slightly unfairly, described in the following terms: Coefficients describing the actual utilization of a particular type of labor in relation to levels of activity, on the one hand, and assumed (usually trend) changes in these over time, on the other, are combined with projections of future activity levels to determine total future requirements for this category of labor.

Independently of the projection of future requirements, the currently available stock of persons with requisite qualifications is aged, account being taken of deaths, retirements and career changes. This provides an estimate of that component of future requirements which can be met from the current stock. The residual is then the net addition to the current stock which must be achieved if future requirements are to be met, account again being taken of attrition due to death and career changes of new entrants between the present and the target date.

Now, one might ask, what if the flow of new entrants is greater or less than that identified to be required? The answer, as far as the manpower approach itself is concerned, is simply that this is just unfortunate. If there is an insufficient supply, presumably, target activity levels will not be achieved. Alternatively, excess supply will be reflected in persistently long queues at the employment gate or at the unemployment office.

Of course, even the mainline manpower analyst acknowledges that some accommodation will be made to the actual appearance of excess supplies of or excess demands for particular types of personnel. If colleges and universities in the aggregate demand more economics professors than are available, they might accomodate to this reality by, e.g., 1) passing the excess demand back to students, permitting queues to form for entry into economics courses; 2) permitting class sizes in economics to rise; or 3) raising tuition for students desiring to study economics.

Note that in each case there is an accommodation which reverberates throughout the system. Even in the first, in which the school itself refuses to adapt in any direct manner, indirectly the adaptation takes place as students, in response to lengthening queues begin to substitute courses in political science, sociology, history or cosmetology for the economics courses to which they cannot gain entry.

The critical process evident here is one of *substitution*, the substitution of that which is relatively more available for that which is less available, whether the signalling of relative availabilities takes the form of, e.g., prices or lengthening lines at the gates or classroom doors.

Similar adjustments take place in the event of excess supplies. Horror stories of the Modern Language Association meetings notwithstanding, we really to not believe that those who do not find positions on previously prevailing terms simply form a reserve army of unemployed scholars, a reserve army which will be eroded only slowly over time through deaths due to suicide and alcoholism.

Rather, if the number of economics Ph.D's entering the market for teaching positions exceeds the number of recruits sought by colleges and universities, then individuals will consider (and accept) positions with fewer perquisites

and lesser salary than they had expected. This, in turn, will lead academic employers to increase hiring rates (witness the increasing numbers of low cost post-docs outside of the traditional science domain); other academic employers not previously in the market for Ph.D.'s will replace, e.g., masters level personnel with now cheaper Ph.D.'s; ect.

And of course, academic employers are not the sole source of demand, although they are of greater relative importance in some fields than in others. Thus, similar substitutions will take place in nonacademic employment, as candidates accept lower-level, nontraditional positions that they would not even have considered before, and as employers substitute the more highly qualified for the less qualified.

Parenthetically, it should be noted that this multifaceted process of adjustment, accommodation and substitution is ultimately mutually beneficial for all of the parties involved. By comparison to ever lengthening queues, everyone is better off; or in other words, we are witnessing a positive sum game. This is not to say that the adjustment is not painful, even traumatic, for some the the participants, only that the alternatives would be even more painful and traumatic.

Now, all of these processes of adjustment, accommodation and substitution are ignored in the formal component of the traditional manpower analysis, which in effect takes a snap-shot view of conditions prevailing at one point in time and interprets that snap-shot as the norm, regardless of the peculiarities which may be inherent in those conditions.

Even more seriously, the analytics of the manpower approach provide, or identify, no link between the "manpower" system and the educational system. Within the broader labor market perspective, that link is again provided by adaptive behavior in response to labor market signals. Thus, relative employment opportunities facing current cohorts of labor market entrants constitute signals to current cohorts of students and potential students, signals which are reflected in changing educational and career decisions and hence in the composition of future labor market entrants.

In general, it can be argued that this process of adaptive behavior is stabilizing, i.e., that it will imply a tendancy toward equalization of labor market conditions across fields of study and between the more and the less educated. However, in the short run and under certain circumstances it may in fact be destabilizing, and this possibility, its manifestations and its consequences should be recognized.

Consider, for example, the case of education: The virtual evaporation since the late 1960's of employment opportunities for persons with bachelor of education degrees may have led, in the first instance, not to reduced investment in education as a field of study, but to greater investment as many of those bachelors degree holders who did not find employment continued into graduate school in hopes of placing themselves closer to the head of the next period's hiring line. More generally, even though the "full employment" advantage of a college education may be very low, high aggregate unemployment may lead many persons to continue in school, simply because the prospect of unemployment greatly reduces the effective costs and increases the effective returns to

schooling.[1] Under temporary, short-run circumstances of these varieties, adaptive behavior may in fact serve to increase the amplitude of quasicyclical swings in labor market conditions.

Ultimately, however, adaptive, labor-market-responsive behavior is almost certainly stabilizing. Thus, depressed labor market opportunities facing education baccalaureate and masters degree holders seeking teaching positions will reduce the inflow of undergraduate (and therefore, with a lag, graduate) students in education, serving eventually to equilibrate the market.

Thus, all things considered, the labor market perspective offers a much more optimistic, or at the least more complaisant, perception of the workings of the highly educated labor market than is provided by the traditional manpower approach.

It should be pointed out, however, that adaptive behavior is easier, less traumatic, and probably more rapid under some circumstances than others and for some participants in the process than for others. For example, adaptation to positive signals is probably easier than responsive adjustment to negative signals. Thus, behavior responsive to excess demands is presumably less difficult and more rapid than behavior responsive to excess supplies.

Consider a student who has devoted substantial resources (years of his life, funds, etc.) to a difficult educational program, motivated at least in part by expectations regarding employment outcomes which derived from the experiences of previous cohorts. If the conditions which he actually confronts on entry into the labor market are significantly less rewarding than anticipated, and if there is any prospect for recoupment through a marginal additional investment, then there will exist a strong psychological incentive to make this additional investment. This is precisely the situation of the education degree recipient, who, in response to a paucity of teaching jobs, continues into graduate school. Because previously incurred costs are effectively sunk, this marginal investment may in fact be totally uneconomical; for all practical purposes the individual may simply be throwing "good money after bad." And in any event, responsive adaptation to labor market deterioration will be facilitated for those at earlier stages of their educational careers.

Similiarly, adaptive, responsive behavior is almost undoubtedly more pronounced and more rapid on the part of individuals than of institutions. Consider, for example, the capacity of graduate schools to respond to changes in the level and/or composition of student demand. In light of tenure and contract commitments to faculty, the existence of more or less specific plant (laboratories, libraries), etc., adaptation would be expected to be much more sluggish for institutions than for actual or potential students.

But even for institutions, the capacity to respond to changing signals will be greater under some circumstances than others. Thus, while difficulties will be encountered in accommodating an institution to any major change in configuration (relative growth of some fields, relative decline in others) which results in greater relative importance for some groups (schools, departments) and lesser

1. (See Stephen P. Dresch, "Human Capital and Economic Growth: Retrospect and Propsect," U. S. Congress, Joint Economic Committee, forthcoming December 1976.)

importance for others, still, this type of change can be more easily accommodated in a period of aggregate growth, in which no component of the system, not even the declining components, must suffer an absolute contraction. In a period of overall stability or contraction, when the response involves the expansion of x at the expense of an absolute contraction of y, or the relatively lesser contraction of x than of y, institutional inertia and resistance to change can be expected to be significantly stronger and more paralyzing.

Needless to say, implicit here is the suggestion that this increasing rigidity and resistance is the prospect which you in graduate education will face and with which you will be forced to deal, for better or for worse, over the coming decades.

Parenthetically, it might also be suggested that the capacity of institutions to respond to changes in the configuration of demand will be greater when the predominant source of that demand is ultimately the higher education sector itself. Thus, an excess demand for economics Ph.D.'s will reflect an excess demand of students for economics courses, which together will increase the number of high quality applicants to graduate programs in economics, which in turn will provide a cadre of graduate student teachers to augment the supply of undergraduate courses, in the process freeing senior faculty for graduate teaching. In short, the process of academic response to changing academic demands involves a system of mutually reinforcing and accomodating adjustments.

And again, implicit here is the suggestion that academic demand for the graduate educated will play a relatively declining role over the intermediate future, reinforcing the difficulties which will be encountered as the system shifts from aggregate growth to stabilization or decline.

In this context, how can the labor market environment of graduate education over the recent past, e.g., the last twenty years, be characterized, and in what directions can the highly educated labor market be anticipated to move over the intermediate future?

To understand recent history, it is necessary to recognize the critical role of the 1940-1960 absolute decline in the size of the "educationally malleable" college age group, on the one hand, and the rapid change in economic structure, characterized especially by a dramatic shift of employment toward sectors in which the highly educated were traditionally disproportionately represented, which occurred over the postwar period, concentrating in a relatively brief time span economic changes which had been held in abeyance by the succession of depression and war.

This juxtaposition of rapid economic change and declining college age cohorts served to drive up rates at which these cohorts were in fact educated. But this process of rising rates of educational attainment persisted even after the appearance at the college level of the greatly inflated cohorts of the postwar baby boom. Because of the delayed entry into the labor force of these expanding highly educated cohorts, delayed precisely because of their high educational attainments and prolonged schooling, the relative excess demand for highly educated labor persisted, further driving up educational attainments.

The implications for graduate education of this historical pattern of devel-

opment are precisely what would be expected. Especially after the late 1950s, with rapid growth in college enrollments, the general excess demand for the highly educated created a specific excess demand for faculty. And parenthetically, faculty demand became an increasingly important fraction of total demand for Ph.D.'s. Thus, after declining over most of the 1950s. the proportion of new Ph.D.'s entering college teaching rose significantly after 1958. This occurred even in the face of a simultaneous post-sputnik surge in research activity and in demand for research scientists, largely explaining the dramatic increase which occurred in the academic proportion of total research expenditures.

Thus, rapid increases in college attendance both reflected and contributed to an excess demand for high-level manpower, which induced correspondingly explosive increases in graduate school enrollments and in PhD and related outputs.

Needless to say, this economic-demographic scenario contained the seeds of its own destruction. And by the late 1960's germination occurred. When the wave of highly educated war and postwar cohorts, graduate and postgraduate, was finally spewed into the labor market, these interrelated excess demands were quickly converted into excess supplies.

The current situation, then, can be briefly, but accurately, characterized as a chronic deterioration in the labor market conditions facing the highly educated, both baccalaureate and advanced degree holders. And parenthetically, one should not permit oneself to be seduced by the post-1973 partial resurgence of rates of college-going and hence college enrollment, and of employment prospects of new Ph.D.'s. These phenomena, paradoxically, are attributable fundamentally to the severe national economic contraction which has occurred. The rapid rise in the national unemployment rate has induced what will ultimately be recognized as only a temporary resurgence of college going, and as a result of this resurgence, the contraction which will reappear as the national recovery proceeds (presaged by the failure of enrollment to rise this year, reflecting the stabilization of unemployment rates) may well be deeper and more severe than would otherwise have been the case. Thus, it may well be most unfortunate that the anticipation of incipient contraction of the highly educated labor market which began to emerge in the early 1970's, at a time when appropriate adjustments could have begun to be made, has been displaced by a tentative (but ultimately short-lived) optimism, if not euphoria, and a consequent failure to prepare seriously for a future which will be very different from the past.

It would also be a serious mistake to believe that the reemergence of a "saturated" highly educated labor market will be only a short-term phenomenon, lasting no more than five to ten years. Assuming substantial movement toward something approximating full employment, college enrollment will begin to contract significantly after 1976-77, and is not likely to reach a trough until the early 1990's. Because the age distribution of the highly educated has rapidly shifted downward, even "replacement" demand will be marginal or non existent. While this is descriptive of the highly educated in general, it is especially descriptive of the very highly educated, most notably college faculty. Thus, a resurgence of academic demand for Ph.D.'s is at least two decades off,

and in the interim the market will be persistently weak in many fields.

Thus, the coming decades will constitute a difficult and trying, if not traumatic, period for higher education in general and for graduate education in particular. Graduate enrollment will decline, decline is also likely to be observed in the academic share of research, and nonacademic Ph.D. demand will probably increase dramatically as a proportion of total demand, all of which will interact to create strong pressures for, and also strong resistance to, institutional adjustment and adaptation to changing conditions.

The only device which can be offered, in light of these prospects, to those responsible for, or at least presiding over, the continuing evolution of graduate education is this: Maintain and if possible increase the capacity for responsive adaptation to future developments. While this will be difficult, the consequences of increasing rigidity and paralysis will be much more serious, ultimately culminating for many in literal rigour mortis. To enhance the capacity to respond will necessarily call into question a broad spectrum of traditional practices, practices which emerged over a century of virtually continuous growth. But the incompatability of these growth-dependent patterns of institutional structure and functioning with a prolonged period of relative decline will have to be faced if the effectiveness, and even the survival, of many of your institutions is to be maintained.

The most divisive issue which will arise in this context will involve traditional tenure practices, an issue the divisiveness of which will be greatly increased in many institutions by the spread of unionization and collective bargaining. The threat inherent in a failure to deal with this issue is, without exaggeration, frightening. As the proportion of age cohorts receiving Ph.D.'s has increased rapidly, the "qualify" or "effectiveness" distributions of these Ph.D.'s has necessarily shifted downward, in the aggregate if not in each institution or program. But notwithstanding this deterioration of quality, the persistent state of excess demand for faculty has ensured that these persons would not only become employed but would also become tenured.

Now, the relative desirability of college (including graduate) teaching will decline as institutional and sectoral contraction sets in; witness the decline of relative faculty salaries over the last several years. But this deterioration in conditions of employment in colleges and universities will be greater if these institutions find themselves unable to dispose of the now more prevalent unproductive faculty. The threat here is actually more serious than might initially appear: Unless the unproductive are somehow eliminated, the more pronounced deterioration will lead the most productive faculty, generally those with the best alternative options, to desert academe. This process of "negative selection" (to use a term suggested to me by W. Lewis Hyde) will only further erode the quality and vitality of higher education at all levels. And note that to succeed in dispensing with unproductive faculty will have some effect on graduate enrollments, as marginal opportunities are created at least the most able members of coming cohorts.

I feel compelled, after setting forth what I believe are well-founded visions of profound gloom, to close on an optimistic note: The general state of the highly educated labor market should begin to improve significantly by the end of the century, as the inflated (in size and in educational attainments) cohorts edu-

cated over the 1960's and early 1970's finally begin to be mercifully eliminated by death and the infirmities of age. But even here caution is in order; apart from the horrendous (but unlikely) possibility that life expectancies of these bloated cohorts might greatly increase, the continuation of very low fertility rates, and incrementally responsive adjustment to the slow improvement in the highly educated labor market after 1990 render most improbable the prospect of an early twenty first-century Golden Age of graduate education even vaguely suggestive of the Golden Age which ended in the 1960's.

Donald J. White

Neal Rosenthal is the Assistant Chief, Division of Occupational Outlook, Bureau of Labor Statistics, United States Department of Labor. He has been with the Division since 1962 and has coordinated its research activities since 1970. He is a graduate of Boston University. He is one of the people responsible for the B.L.S.'s programs designed to identify the defects of Federal expenditures on occupational requirements. He is considered to be one of the nation's leading authorities on occupational supply research. That is the area about which he will talk with us today. It gives me great pleasure to introduce Neal Rosenthal.

THE PROSPECTIVE FOR Ph.D. SUPPLY AND DEMAND

Neal H. Rosenthal

The Bureau of Labor Statistics Occupational Outlook program has provided information on the job outlook in specific occupations for about three decades. This program, originally designed to provide information for career guidance programs has now become the primary federal program developing national projections of occupational demand and supply for use in educational planning. Our primary guidance publication is the *Occupational Outlook Handbook*, and information for use in education planning is published in a variety of special publications including *Ph.D. Manpower: Employment, Demand and Supply, 1972-85*, with which I believe most of you are familiar. Today I plan to focus on work that updates this publication, which has just been published in a new publication, *Occupational Projections and Training Data*, BLS Bulletin 1918.[1] The information on Ph.D's is in less detail than our earlier publication, but the same basic data are presented.

I am sure it comes as no surprise to you that the supply projections for Ph.D's over the 1974-85 period greatly exceed projected job openings. Projected openings from growth and labor force separations total about 200,000 for the 1974-

1. Revision of *Occupational Manpower and Training Needs*, BLS Bulletin 1824.

85 period, whereas the projected supply of new Ph.D's available for employment in the United States is projected and about 420,000. (See Table 1.)

Ph.D's in some fields are expected to feel the effects of this projected oversupply more strongly than others in their efforts to find satisfying jobs. A large potential surplus is projected in the field of physics, life science, mathematics, social science, and education. In chemistry the potential surplus is relatively small, and in engineering the difference between projected supply and demand is very small, with the balance on the demand side.

One of the most significant statistical measures to identify potential problems in the labor market for graduates in specific fields is the ratio of new supply to projected job openings. These ratios range from a supply eight times greater than demand in business and commerce to supply being four percent lower than demand in engineering.

TABLE 1

Projected Openings and Entrants for Ph.D's by Field, 1974-85

Field	1974 Employment	Projected 1985 Requirements	Percent Change 1974-85	Openings 1974-85			Projected New Supply	Difference between New Supply & Opening
				Growth	Death — Retirement	Total		
All fields	378,400	488,600	29.1	110,100	91,800	201,900	422,900	221,000
Engineering & natural science	177,500	237,500	33.8	60,000	44,000	104,000	139,400	35,400
Engineering	35,000	55,700	59.0	20,700	9,600	30,300	29,100	(-1,200)
Physical science	68,500	86,300	25.9	17,800	16,400	34,200	38,300	4,200
Chemistry	37,700	43,300	14.8	5,600	8,600	14,200	18,000	3,800
Physics	24,700	25,900	4.8	1,200	5,400	6,600	12,100	5,500
Life science	60,000	78,900	31.5	18,900	14,700	33,600	59,500	25,900
Mathematics	14,000	16,600	18.8	2,600	3,200	5,900	12,400	6,500
Social science	71,600	101,600	41.9	30,000	18,300	48,400	88,800	40,400
Psychology	26,300	46,200	75.5	19,900	7,700	27,500	38,100	10,600
Humanities	46,600	45,900	(-1.4)	(-600)	9,800	9,100	52,600	43,400
Education	68,700	87,400	27.2	18,700	16,500	35,200	115,400	80,200
Business & commerce	6,500	6,800	3.8	200	1,400	1,600	13,300	11,700
Other	7,400	9,300	24.6	1,800	1,800	3,600	13,300	9,700

SOURCE: Bureau of Labor Statistics

Ratio of New Ph.D. Supply to Job Openings, 1974-85

Field	*Ratio Description*
All fields	supply 2 times as large as demand
Engineering	supply 4 percent lower than demand
Chemistry	supply 25 percent higher than demand
Physics	supply 85 percent higher than demand
Life Science	supply 75 percent higher than demand
Mathematics	supply 2 times as large as demand
Social Science and Psychology	supply 80 percent higher than demand

Arts and Humanities ..... supply nearly 5 times as large as demand
Education ..... supply 3 times as large as demand
Business and Commerce ..... supply 8 times as large as demand

The numerical difference also varies considerably among fields. For example, the numerical difference between supply and demand is 80,200 in the field of education and only 5,500 in physics, yet both are considered in the significant oversupply category.

It's also interesting to compare the growth rate of Ph.D's in a specific field to growth of the field as a whole, as well as to growth in total employment. Total U.S. employment growth is projected at 20 percent between 1974 and 1985. Engineers as a group are projected to grow by about 33 percent; requirements for Ph.D engineers are projected to increase at about the same rate. In chemistry, total employment is projected to grow by 29 percent, faster than the average growth in total employment. Requirements for Ph.D chemists, however, are projected to grow by only 15 percent reflecting the prospective decline in college and university advanced degree enrollments in this field. Physics has a similar situation (total growth 25 percent and Ph.D. growth 4 percent) but the growth in life science and mathematics is very similar for both Ph.D's and the field as a whole (30 percent and 17 percent, respectively).

Despite the significantly large difference between projected openings and new supply, the likelihood that Ph.D's will experience high levels of unemployment is not strong. Instead underemployment—employment in a job requiring less skill than the worker has acquired—with its inherent job dissatisfaction, may become widespread. Many new Ph.D recipients will find themselves actively seeking and successfully finding jobs outside of traditional teaching and research roles. Whether or not they successfully adapt to their new role remains to be seen, but there is no question that many will experience great disappointment at being unsuccessful in obtaining desired positions.

Perhaps you are now asking yourself, how creditable are these projections? Will these projections which are somewhat dismal for many be realized? To give you some feeling for an answer to this question, I would like to briefly discuss the methods used to develop them. First, let me say that I realize that nobody can predict the future with certainty. Thus, I would like to make sure that you understand that the projections presented above should not be taken as a firm prediction of the future. However, some basic assumptions can be set out and past relationships can be projected forward into the future. To the extent that our assumptions are correct and that basic relationships do not change dramatically, the projections can identify the likelihood of certain situations occurring. Many factors, of course, cannot be foreseen with certainty, such as the federal government's policy regarding research on solving the energy crisis. Different policies in this regard can have widely differing effects on the demand for Ph.D.'s. In developing our projections we are forced to make assumptions concerning these policies—sometimes we are right and sometimes we are wrong. However, the Bureau has been fairly successful in the past in identifying significant manpower developments and we are constantly conducting research to improve our projection capabilities and developing new data to use in our projection efforts.

The projections I have presented earlier are based on the following broad assumptions. That:

- the institutional framework of the U.S. economy will not change radically
- social, technological and scientific trends will continue
- the economy will gradually recover from the high unemployment levels of the mid-1970's and reach full employment in the mid-1980's
- no major event such as widespread or long-lasting energy shortages or war will significantly alter the industrial structure of the economy
- trends in the occupational structure of industries will not be altered radically by changes in relative wages, technological changes, or other factors.

Within the framework of these assumptions a model of the economy was constructed that ties together in a logical manner population, labor force, productivity, GNP, employment by industry, and most importantly for our discussion today, employment by occupation. I will not go into the details of the projection procedures except to say it is a very complex operation. Those interested in the details should consult *Occupational Projections and Training Data*.

The Ph.D projections were developed by relating trends in the proportion of workers in an occupation holding a Ph.D to total workers in that occupation, by sector of the economy (education[2] industry and business, Government, and nonprofit organizations). Trends in these ratios were developed for the late 1960's, prior to the apparent surplus conditions beginning in the early 1970's.

On the supply side, degree projections developed by the National Center for Educational Statistics (NCES) were used which are based on the past ten year trends in enrollments for advanced degrees. In the BLS supply calculations, individuals were excluded from these totals who are expected to emigrate or return to their home country. On the other hand, workers with Ph.D's who were expected to immigrate to the United States were included.

Overall therefore, our projections assume a continuation in the current patterns affecting the supply and demand of Ph.D's. But, can we realistically expect these patterns to continue despite the problems that apparently will be caused in the labor market. The study of economics tells us that relative wages adjust during periods of surplus. Thus, an excess supply of Ph.D's can be expected to result in lower relative salaries. In turn fewer persons are likely to complete Ph.D programs, and employers will likely hire more Ph.D's, because they can get better trained workers at a lower relative price. And, this is exactly what happened during the early 1970's. Earned doctor's degrees which doubled from 1964 to 1970, have risen much slower during the 1970's and an increasing number of Ph.D's were hired to perform jobs outside of traditional Ph.D roles.

These adjustments are likely to continue. The U.S. Office of Education is in the process of revising its Ph.D projection even lower. (Preliminary results indicate Ph.D degrees between 1972 and 1985 to be 25,000 lower than the previous estimate) And, eventually studies of demand may have to consider an

2. In educational institutions, trends in the ratio of Ph.D's to total faculty were used.

increasing number of jobs for Ph.D's outside of teaching and research as demand rather than surplus.

Many factors will influence the adjustments that take place. One significant factor, of course, will be the decisions taken by deans of graduate schools and other university administrative officials concerning expansion of Ph.D programs or establishment of new programs. This adjustment has already taken place in many instances as you well know. Policies of different federal agencies regarding support for graduate students in certain fields also can have a bearing on the future supply-demand situation for Ph.D's. These decisions and their resulting effect will be watched by BLS analysts and others involved in developing projections of highly trained manpower and incorporate this information into projections prepared in the future.

The projections which I discussed earlier are in fact, revisions of those that were developed a few years earlier. It may be of interest to you to know the difference between our current and earlier projections.

Overall the revised projections show a smaller potential surplus than the original projections. On an annual basis, the original study showed an average surplus of about 30,500 Ph.D's a year, whereas the revised study shows an average annual surplus of 20,100. Most of the decrease from the original study stems from a decline in projected degrees to be awarded. In the original study, NCES projected that nearly 610,000 Ph.D's degrees would be awarded over the 1972-85 period. By the time we conducted our revised study, NCES revised its projections down to about 508,000 Ph.D awards over the same period. In addition, the data based used to develop estimates of labor force separations was improved and the results indicate openings to be much higher. Growth did not change significantly for Ph.D's as a whole although some difference occurred in individual fields. For example, requirements for engineers increased and requirements for physical scientists decreased. A major cause of this decrease was the lower degree projections, because a large part of the demand for Ph.D's stems from the need to teach students enrolled in graduate programs. Lower enrollments, therefore, leads to lower demand.

You all are probably aware that the NSF also developed projections of Ph.D manpower, which cover scientists and engineers. You may remember that an article was written in *Science* magazine showing the difference in numbers in the two studies. NSF and BLS staff convened together following that article to identify the differences and found the major difference resulted from NSF's use of projections of degrees developed by themselves whereas BLS used NCES degree projections. The revised NCES projections are fairly close to those that NSF developed, and if we redid our old study using the new NCES projections the results would be very similar.

Actually, the basic conclusions of the two studies were the same despite the numerical differences. Both studies indicated a surplus situation and both agencies realized that adjustments would take place. The BLS study was done about a year prior to the NSF study although it was not published until about the same time. If NSF redoes their study they would also differ from their original. The methodology of the two studies, however, differed somewhat so the results could never be identical. For example, the NSF used the relationship of Ph.D's to research funds to develop requirements for PhD's in

nonacademic R&D. They also used student faculty ratios to develop demand data in colleges and universities where BLS used OE projections of faculty as the independent variable.

Despite the differences in the methods and the specific numbers, however, it is clear that more Ph.D's are currently being turned out of our nation's schools than can be used to fill positions traditionally held by Ph.D's. The market has adjustment mechanisms however, both on the supply and demand side, and experience during the early 1970's shows that this mechanism has a significant effect. The potential differences between demand and supply is apparently narrowing, but studies must continually be conducted to monitor this situation very closely.

Donald J. White

Holding our "clean-up position"—fourth in the batting order—naturally is a dean and a most distinguished and seasoned one. Dr. Robert M. Bock, Dean of the Graduate School of the University of Wisconsin since 1967, is also a noted professor of molecular biology and has been at the cutting edge of that discipline. He will provide for us the perspectives of a graduate dean. I am most pleased to introduce to you Dr. Bock.

Robert M. Bock

The influence of national manpower needs on Federal and State support of graduate education is the subject of intense analysis and discussion at both State and national levels. During the past two years I have served with committees of the National Research Council and worked with Dr. Kelly on the difficult task of evaluating and projecting biomedical research manpower needs as related to federal training programs. I have also been involved in budget building discussions and reviews with State of Wisconsin legislative and executive analysts.

As a Graduate Dean, I found myself trying to relate these manpower studies and discussions to the roles and responsibilities of a Graduate Dean. As one looks over the components of a major graduate university it is evident that the mission of the University includes diverse components. Some parts of our universities have long had manpower production as the mission for which State or Federal support is made available.

We are aware that the State support of certain professional schools in our universities have been very strictly tied to production of high quality professionals to meet the publics need for physicians, veterinarians, dentists, nurses and specific health professionals. Access to health professional and law schools has been available to only a limited number of qualified applicants. The federal role in health professional manpower training has been focused on keep-

ing tuition low enough and facilities good enough that quality training is available to qualified applicants at a cost well below the actual instructional cost.

Schools of Engineering and of Education are also supported by States at a scale related in large measure to the manpower needs of the supporting public. However, the limitations on access and the public expectations for filling local needs are not as intense as in the health professions. Graduate engineers are known to be mobile on a national basis and graduate training in education has a major career advancement role for State teachers.

Most of us recall the 1950's and 60's when enormous federal programs provided stipend and tuition support to graduate students in the sciences, the social sciences, humanities and engineering. These federal programs were funded in response to projected manpower needs. NDEA, NASA, NSF and NIH all supported large numbers of students for broad manpower needs in areas of concern to these agencies. A review of the growth of these programs reveals that the demographic data which identified the coming needs were valid, and the programs were highly successful in providing the faculty to staff our enormous expansion of universities in the 1960's. These federal programs, supplemented in their early days by large numbers of Ford, Danforth and Rockefeller fellows, were national investments in high quality manpower for broad needs. States played important roles in the same effort by keeping tuitions low and building the facilities to train and later to absorb a large part of the highly trained product.

Contrast that scene with the 1970's. Federal support is carefully tailored to avoid further expansion, NSF has tied part of its much smaller student support program to very specific national needs, NIH has had payback provisions introduced by Congress along with a mandated annual analysis of health research manpower needs. States find themselves unwilling to operate their expanded university systems at the low tuition levels under which they grow and ask that students borrow to pay ever larger percentages of the instructional costs.

As students and parents plan and save towards investments in education, as faculty, administrators, legislators and voters consider the optimum deployment of their resources for the future, they share common concerns about the opportunity and need for specific trained scientists, professionals, and scholars.

The unemployment rate continues to be lower as the educational level increases but the economic return is no longer the golden investment of the 50's. Even though the momentum of building new universities, providing convenient local higher education and expansion of existing schools continued into the 1970's, my University has long experienced the impact of the market place, of shifting federal resources and of alert, well informed students who vote with their feet.

The free expression of choice in a national graduate education market by well informed students has resulted in major internal shifts in program content, size and focus. The dramatic swings of federal priorities from a *space, defense,* and *technology* race, through an intense era of production of college teachers to fill that genuine need, toward saving a troubled environment and

then to social, economic and technical fixes for scarce resources, for recession and over-population have moved the University and its students along with the swinging pendulum of national priorities.

As the national priorities changed, so did the funds for graduate training and for the federally funded laboratories, computers and resources needed to provide an effective training environment. These resources were won (and must be continually rewon) in national competition where quality, and output are measured closely. In times of generous funding, more schools could compete, but with today's scarce dollars and the ravages of recent inflation, the weaker programs drop both in support won and in ability to attract students.

Dramatic changes have been occurring for a decade. The peak years for UW-Madison graduate starts was 1967. While total graduate enrollment has been within 4% of 9000 for 10 years, the internal shifts are many times 4%. The Master of Arts output dropped nearly 30% from its peak of 1968-69, while the Master of Science grew moderately and the Master of Business Administration tripled in the past decade. Ph.D. output peaked in 1970-71 and is down 15% from that peak. The *internal shifts are far greater than these total figures imply*.

Nationally, chemistry and chemical engineering Ph.D. reacted sharply to a perceived excess in the late 1960's, and peaked in 1970-71 (chem) and 69-70 (chemical engr.). By 1974-75, the output was down 10 and 20% respectively, an overcorrection causing current shortages as the economy begins to recover.

As students became more concerned on their employment prospects, they chose majors, options within a major or minors to broaden the market for their skills or to move toward areas of emerging need.

Many of our graduates today move into an excellent market where they have numerous jobs from which to choose. Others find they must accept far less prestigious posts than did the students who graduated a decade ago and they must seek more widely to secure an adequate position. Will college graduates be willing to invest the time and money for the smaller fiscal advantage now associated with graduate training? In the 1980's we will have the first children of the very large numbers who took graduate training in the 1960's. Past data implies that children of graduate degree holders are more likely to aspire to graduate education. This predicts a new rise in the 1980's of the percent of college graduates who go on to graduate school.

While it is readily documented that major changes have been brought about by the job market, population shifts, economy, student interests and federal support, should a University do more than respond to the changes in funds and in students available? Since excellence wins funds and students, a strong program will be solvent and will give its students better employment opportunity than the average student will find.

Even in a field of limited job prospects, an excellent program will be able to place its students.

Departments should be morally obligated to inform students of their recent *placement record* and to help them acquire the best national data on employment in their field. Administrators are obligated to make hard decisions as we review our programs so that resources can be diverted away from programs not placing students adequately, not attracting good students or not winning an

appropriate level of federal support. It has been necessary to make these hard decisions in order to adapt to the internal dynamics which have occurred and must continue to occur.

Graduate training is a national enterprise and the influence of any one school on the national supply/demand status is usually negligible. Thus, it is appropriate that the federal government monitor *national* manpower needs and by capitation grants, training grants, fellowships and research grants move funds to the areas of highest current priority. We Deans, as individuals, will have little impact on national manpower shortages or surpluses but by striving to be selective in supporting the best quality of our programs, by recognizing the great diversity of our mission, we can strive for the quality of training which will serve our own graduates well. The intellectual attraction of some fields may match poorly with financial gain and yet be a satisfying investment to the student. In industry and government, the decision to invest in highly trained manpower should reflect the quality of manpower available. Only by maintaining high standards of quality can graduate education continue to win the needed public support of its costs, the confidence of the employers of our students and of young men and women who must decide whether to dedicate years of their lives to demanding graduate study.

Third Plenary Session

Thursday, December 9, 1976, 8:45 a.m.–10:30 a.m.

INCREASING OPPORTUNITIES IN GRADUATE EDUCATION FOR MINORITIES AND WOMEN

Chairman: J. Chester McKee, Jr., *Mississippi State University*
Moderator: John B. Turner, *Massachusetts Institute of Technology*
Sharon C. Bush. *Ad hoc Consortium on Minority Graduate Education*
Laurine E. Fitzgerald, *University of Wisonsin, Oshkosh*
Frank Hale, Jr., *The Ohio State University*
Patricia M. Harbour, *U.S. Department of Health, Education, and Welfare*
Oscar A. Rogers, Jr., Jackson State University

J. Chester McKee, Jr.

The session this morning was arranged by the program committee in recognition of the tremendous importance of increasing educational opportunities in graduate education for minorities and women. We have asked Dr. John Turner, Associate Dean of the Graduate School at the Massachusetts Institute of Technology, to take the responsibility for organizing the panel. Dean Turner has done a magnificent job of bringing to us an outstanding group of speakers and individuals who have been active in this area.

Before I turn the program over to Dean Turner, I would like to mention that the Council of Graduate Schools has a formal committee on the disadvantaged graduate student, headed by Dean Wesley Elliott of Fisk University.

At this time it is my pleasure to turn the podium over to Dean Turner.

John B. Turner

Good morning. I am especially pleased and uplifted by this morning's session.

We do have a very serious topic to discuss this morning and have a cadre of distinguished scholars and educators to comment on the subject of increasing minorities and women in graduate education. It is indeed appropriate and essential that this body address the issue of minority and women students in graduate education. At the precise time when blacks and other racial minorities are beginning to make progress in increasing their numbers in graduate schools across the country, colleges and universities are being hit with budget cuts and a failing economy. There is a feeling that retrenchment is setting in and that commitments made in the heyday of large federal grants and bulging budgets are being broken. Now, funding is tight and times are hard for higher education. Those of us who are in the forefront of the struggle

to increase the current number of minority/and women graduate students are very concerned about recent efforts toward this goal. The legal cases now in court pose a real threat to the momentum correcting past inequities and underrepresentation of special racial groups. The Bakke and Georgetown University cases are examples of attacks on programs and efforts to increase the number of minority students in graduate and professional schools.

The business of this organization and that of our individual institutions in regards to minority graduate education is still labelled unfinished business. We have a great deal to do and we should be about it today. The panel this morning will not rehash a description of the problem. I think if you read the publication, *Minority Participation in Graduate Education*, you will find that it does a very good job of documenting where we are and where we should be going.

Our panel this morning consists of four graduate deans and two professionals from Washington—a very interesting marriage. We have asked each speaker to take a few minutes to articulate their particular perspective and then will entertain questions and comments at the conclusion of our last speaker.

A NATIONAL EFFORT TO EXPAND MINORITY GROUP PARTICIPATION IN GRADUATE EDUCATION

Sharon C. Bush

The name *Ad hoc* Consortium on Minority Graduate Education sounds considerably more impressive than its actual existence warrants. I will briefly summarize the objectives of the *Ad hoc* Consortium, its genesis, and explain what it is and is not. Then I will describe the basic outlines of a proposal for federal support of minority graduate education for consideration by the members of the Council of Graduate Schools.

The *Ad hoc* Consortium originated from a desire expressed by several institutional, association and foundation staff to follow-up on the recommendations of the recent report of the National Board on Graduate Education entitled *Minority Group Participation in Graduate Education*. The report had been previously endorsed by a number of representatives of black higher education associations and institutions at a press conference in early June 1976. At about the same time Derek Bok, President of Harvard University, had developed a draft proposal for a federal program designed to increase the number of minority men and women earning doctoral degrees that would then be available for faculty positions in colleges and universities.

These interests coalesced in an informal meeting in mid-June of representatives from three graduate schools, higher education associations and foundations. From this discussion it was concluded that universities might productively develop cooperative activities in order to improve the effectiveness and efficiency of their individual efforts to expand minority participation, and a great need exists for federal support for minority graduate education. A

broad-based effort should be initiated to encourage federal funding for this objective.

During this initial discussion it was decided to convene a small group of high-level administrators from doctoral institutions that had expressed concern about minority participation. In addition, a proposal for a planning grant to initiate these two broad activities should be developed. (The proposal was subsequently funded by three private foundations.)

At this follow-up meeting hosted by the University of Wisconsin at Madison in early August, representatives from 18 graduate institutions, government and the sponsoring foundations were present. From an intense debate about the problems and possible solutions emerged:

1. An outline of general areas in which doctoral schools might effectively implement cooperative activities. A major premise was that any cooperative program should try to build on existing institutional resources. Many activities could be undertaken without extramural funding for student aid.)
2. A consensus about the need for an informal consortium or association that would provide information, communications, and coordination functions. The group did not envisage establishment of a formal organization with a large administrative infrastructure. Rather, the consortium organization would be defined only insofar as individual cooperative institutional projects required coordination from a national perspective. Such an *ad hoc* consortium would serve primarily as a catalyst for institutional and national efforts, rather than as an operating organization in and of itself.
3. The need for a national effort to persuade the federal government to assume a major responsibility in assisting institutions to expand opportunities for minority men and women to pursue graduate study. The group unanimously endorsed the basic recommendations of the National Board on Graduate Education for a federal program of competitive instutional training grants as a promising strategy for increasing minority participation.

   As a result of this third recommendation a proposal for federal support of minority graduate education is being developed. It is this proposal which I wish to describe to you.

The goal of a program of federal support should be expansion of opportunities for talented minority students to enter and successfully complete graduate study, especially in disciplines where they have been most underrepresented and which offer reasonable employment prospects. Such a program should emphasize the following points:

1. The federal role should complement, not supplant, existing institutional efforts.
2. Although the program should not be remedial, it must be recognized that money (student aid) is not sufficient to overcome the barriers limiting minority participation. Funds must be available to institutions for informational, recruitment, supportive service and other activities if minority students are to be enabled to not only gain access to but also to complete advanced study.
3. There is a need to provide an educational environment conducive to minor-

ity student achievement—in other words—to set into motion a self-sustaining process wherein minority student participation is the accepted norm, not the result of special effort. Therefore, a federal program should attempt to encourage institutional commitment and leadership in attainment of these goals that will be sustained beyond the immediate federal funding effort.

4. The fundamental process of graduate education demands that the student be integrated into the mainstream of departmental teaching and research. Faculty involvement is key and must be encouraged.
5. The broad diversity in institutional missions, resource capabilities and needs must be recognized, thus, individual institutions must be permitted flexibility in responding to the constraints on minority access.

Through a program of competitive institutional grants, institutions would submit proposals to the federal government (the U.S. Office of Education presumably) that would include the following components:

1. Definition of explicit objectives in terms of numbers of students and the target population. Each school would specify the recruitment, supportive service, summer programs or other activities that would be implemented. In sum, it would propose the kind of package (financial aid and other activities) believed necessary to increase minority student access and maximize the prospects for student success.
2. Description of existing and proposed institutional commitment to these goals, i.e., current and proposed activities. The grant should not be viewed as an institution-building mechanism nor one that would channel large sums of money into administrative infrastructure. Most of the funds would be directed to student aid (awarded on the basis of financial need) with additional funds allotted as are deemed necessary for supportive services to promote student achievement.
3. Maintenance-of-effort provision. This should be included in each proposal to ensure that federal funds complement, rather than substitute for, existing institutional commitments.
4. A proposal could be complex involving many kinds of activities or simple; for example, a school might request funds only for student aid if it has determined that financial assistance is the prime barrier to expansion of minority enrollments.

It is suggested that federal funding of $30-40 million per year would be required to exert a significant impact, allowing about 50 grants to institutions.

Two concerns have been expressed about this approach: student choice of institution and program would be limited since not all universities would receive grants, and funds might be diverted to expand existing graduate programs or for elaborate administrative organizations that would not serve the main purposes of the federal objectives.

At the present time there is also support for a supplemental program of portable fellowships, restricted to minority students, awarded on the basis of academic merit without regard to financial need. The three goals of this kind of program that would require federal funding are:

1. to acknowledge and reward academic excellence attained by talented minority students;
2. to motivate the most talented minority students to pursue doctoral study, students who might otherwise seek immediate employment or choose professional study because of the financial incentives; and
3. to maximize student choice of fields of study and institutions (since not all schools would receive institutional grants).

This portable fellowship program would provide both a stipend paid to the student and a cost-of-education allowance for the institution. One hundred new awards per year is recommended, or three hundred awards (new and continuing) annually once the program is in full operation. Several reservations have, however, been expressed about this approach:

1. Portable merit fellowships would aid students who are likely to receive support anyway; thus such funds would not work to expand the number of minorities entering graduate study;
2. There would be a natural tendency for universities that are financially hard-pressed to reduce their own resource commitments to minorities if students enter with external funds; thus federal funds would merely replace rather than complement existing institutional funding;
3. The establishment of national selection criteria patterned after the current NSF fellowship program would be counter to present efforts to reduce excessive, inflexible reliance on standardized criteria such as the Graduate Record Examinations, rather than trying to employ other predictors of academic success for minorities;
4. A separate fellowship program restricted on the basis of race and ethnic status might be perceived as "second-class';
5. It is unlikely that two programs will be funded by the federal government. While most agree that the institutional grants program should receive the highest funding priority, priorities could be reversed and the portable fellowship program funded as a token commitment to minority education (and also perhaps expanded to include women and disadvantaged non-minority students, thus having only a minimal impact on minority access);
6. The constitutional question is overpowering. Almost all legal scholars believe that a program in which eligibility is determined only on the basis of race and merit is both politically and legally infeasible.

Funding for any effort to assist minorities faces yet other obstacles. The passage of new legislation for this purpose is unlikely. While existing legislation might well serve for this program, thus requiring only an appropriation, there is some concern that such a program would not be entirely consistent with congressional intent as expressed in the original legislation. Moreover, in a time of purported "oversupply" of doctorates, a program to produce more Ph.D.'s faces considerable skepticism. Yet there are some positive signs. Higher education institutions are gaining a more sophisticated understanding of the problems facing minority students and developing clearer insights into how to resolve these problems. Therefore, they can be more persuasive in stating the need for a substantial federal program of assistance. The difficulties in hiring minority men and women as faculty in colleges and universities

have been widely publicized and the bleak prospects for affirmative action plans required by Executive Order 11246 in the absence of successful efforts to increase the number of minority persons earning advanced degrees signal the need for federal action. Congressional agency staff have expressed widespread interest in this topic.

In sum, I invite your participation in developing and supporting this proposal. If any legislative and appropriations efforts are to be successful, they will require the broad, genuine commitment of many sectors of the higher education community. It is clear that now is the time to pursue actively solutions to the problems that we have been only discussing for all too long a time.

INCREASING OPPORTUNITIES AND PARTICIPATION IN GRADUATE EDUCATION FOR WOMEN

Laurine E. Fitzgerald

As a participant in a panel session, representing diverse institutional and governmental employment settings, and which has at least a dual focus on ethnic minorities and women as graduate students, it seems appropriate to briefly note the perspective from which I couch the status and need for additional efforts in the provision of graduate education for women.

The University of Wisconsin-Oshkosh is one of a cluster of thirteen universities within the Wisconsin system, only two of which are "doctoral" institutions, and the UW-Oshkosh is one of the eleven "master's" universities. However, prior to 1974 and the beginning of my current role, I had been a graduate faculty member, teaching at the graduate level since 1959 in three large institutions. My comments this morning will derive from interactions with master's and doctoral women and men and by virtue of my faculty activities in the west and midwest.

In preparation for this paper, with sole focus upon women as graduate students, it seemed important to anticipate the possible mind set of this conference body with respect to the topic. It is not entirely a new topic of concern for this group. The CGS and regional graduate groups have, in recent years, had at least one segment of every program with a similar title; nationally, affirmative action has required almost every postsecondary institution to confront recruitment practices and policies impacting graduate students, faculty and administrators. What then are the motivators? Is it to increase opportunities or to increase the numbers for the applicant *pool*? It would seem that many graduate educational *opportunities* already exist for women, and within this decade the hidden agendas have been flushed from faculty departmental admissions closets. The most recent five years has produced a turn-round in *reported* student and staff recruitment *practices;* it is the proportionate current *results,* as reported, which are curiously consistent with that of past practice. As we view the future for graduate schools and graduate deans, the topic looms larger in importance for our institutions; the same conferences of graduate deans typically include more than one topic which bears directly upon *steady*

state or reduction economics topics, projected enrollment declines, alternate educational delivery systems, non-traditional degree programs, etc.

Whether the motivation for more women graduate students is altruistic education, or a product of an academic marketing/management posture, the goal of increased participation by women at the graduate level remains clearly in focus. The "recruitment" dimension, which is implied by the topic, and our focus on strategies has puzzled me. Initially it would appear that the graduate dean or the graduate school is the most *illogical* place to focus this topic, with the single exception of administration of large and well-funded grants programs. Since funding for graduate study especially earmarked for women is, at best, limited and comes primarily from private foundations, even this aspect seems remote from the work of the graduate dean.

However, considering the role and the vantage point of the all-institutional "location" of concern of the graduate dean within the educational model of American postsecondary education, there is a unique opportunity for graduate school administrators to serve a potentially significant **catalytic** role.

I prefer to avoid having to develop a rationale for women's studies courses, theme concentrations or majors; for the provision of loans and scholarships from unknown sources or from federal funds; for the elaborate patterns of recruitment of potentially able women for faculty and staff positions which have faculty development/staff in-service components, since these are activities which institutions and organizations have already attempted with varying degrees of success. I would prefer to consider the populations which must become involved in the entire educational *system*, kindergarten through the baccalaureate degree, and to project what must be done, by all educators.

An essential element for future success in increasing the numbers of qualified women who will participate in graduate education might be a change in the self-concept of the graduate dean. A changed self-perception should be followed with a shift in focus and role. The foregoing notion stems from my fairly recent arrival within the dean ranks of graduate schools, and my attempts to read descriptive statements about the work of the graduate dean. Have you focused, recently, on the paucity of definitive statements regarding this element of postsecondary education? More importantly, the most frequent adjective employed regarding the graduate dean is **charisma.** Charisma ought to be changed to **catalyst,** as a descriptor for graduate administrators.

If it can be assumed that "opportunities" for graduate participation by women exist in ever-increasing numbers, then it will become mandatory for graduate deans to assist in increasing the incentives for graduate education for women, and the corollary activity will be to increase the aspirations for graduate education by women. Two populations can be identified. . .the female applicant pool for 1977 and the rest of this decade; the female applicant pool for 1987 and beyond. The women who apply in the near future have already been significantly culturally conditioned regarding the life roles which require or encourage graduate study. Those women in 1987 who apply, at age twenty-two or beyond, are still in the grades and *may* have expanded horizons resulting from cultural and educational activities directed toward the elimination of gender role stereotyping. It is very possible that there will be no enrollment decline, for women graduate students and that marked and significant in-

creases can be anticipated. If equal proportions of the bright and able little girls are encouraged to pursue advanced graduate work in the same K-12 **total** cultural and educational **developmental model** as little boys.

We, as graduate deans, faculty members and private citizens should be able to have some impact in the non-graduate sphere, attempting to generate **aspiration** among young women. An active, not passive or "charismatic" role is required.

For example, public educational systems have shown a steady downward trend in the past fifty years for leadership roles for and **role models** of women in teaching and administrative positions. Less than 1/10th of 1% of superintendent titles are held by women. Yet almost seventy years ago, the first woman president of the National Education Association was the Superintendent of the Chicago Metropolitan School District, and she was not a token woman holding this kind of major responsibility. In slightly more than twenty-five years, the proportion of women as elementary and secondary principals and assistant principals has dropped to less than 30% on a national basis. Additional "hidden dissuaders" for women to aspire towards fields requiring graduate study are found within the text books, library resources, and the curriculum of the majority of elementary and secondary schools. The situations are coming to light, and very slow responsiveness can be noted in some school districts. Publishers of school texts have indicated that it is possible to convert to the metric system, but that sex-fair content in mathematics, social sciences, and literature is virtually impossible. Is there any wonder that there is "feminine fall-out" of the very bright and able high school girls and the average girls, before attempting college, and that this pattern is reflected in graduate attendance as well? It would seem that a graduate staff could have greatest impact at the taxpayer's and citizen level in supporting curricular assessment, teaching practices, and the search for and appointment of women in administrative and leadership roles.

At the post-secondary level, and within those institutions offering graduate education, graduate deans can review curriculum and content in the liberal arts and education departments which shape the biases of future teachers in the elementary, middle and secondary schools. In addition, although we admittedly have little, if any, direct involvement in the degree program admissions process, and perhaps little active participation in recruitment, it is possible that a proactive posture will be ours in the future. The all-institutional nature of the graduate school, the opportunity for a macroscopic approach to the total graduate curriculum might be the most appropriate departure point to launch a review of policies or procedures, courses, textbooks, or other aspects of graduate student life which disproportionately impact women. Graduate education remains predominantly a masculine activity, with many of the regulations tacitly supporting the married male graduate student. Beginning in 1783 when Lucinda Foote passed an examination for admission to Yale, and was denied "on the basis of *shape* of skin" there have been overt and covert decisions from faculty admissions committees which dominate the graduate student aspiration-inspiration cycle, negatively affecting women.

Perhaps a factor which should be of major concern for most graduate schools of relatively recent origin, is the data which note that "nothing succeeds like

success"...in the attraction and graduation of numbers of women graduate students. The Tidball study documents the success of doctoral women in diverse fields from those institutions which have a long and continuous history of large numbers of women undergraduates, and graduate students. Another dimension of the same study documents the identical pattern among men, especially noting large numbers of male faculty and students in sharply focused academic fields. In short, what has worked well for men has worked for women at the graduate level, and there is some supporting evidence that the transition from high school to college and perseverance at college has similar profiling.

Two final elements seem essential for discussion of the topic this morning. The first is "time and place", and the second refers to the aspiration/support-building role of the faculty. With reference to the first noted area, and encompassing the two populations previously noted...the immediate applicant pool for 1977, and the somewhat longer range target group of women—in 1987, most graduate schools should consider graduate women as non-traditional students, even within contemporary parlence. We may be able to anticipate a change in the proportion of women born in the mid 1960's who will become graduate students in 1987, perhaps as a result of career development programs, counseling and role models. However, the current woman graduate student is an adult, and she tends to be self-supporting (whether married, separated or single) and frequently is fully employed. Can and will graduate education directly confront, especially at the advanced degree levels and in professionally oriented degrees, delivery models which meet the needs of adults who may have almost full-time responsibilities within the home or within employment? Among the models, Saturday or week-end classes, modular units, mediated instruction, computer assisted or interactive instruction, appear to be possibilities. And, will residency for the doctoral degree maintain?

A final possible strategy stems from very informal assessments made by a number of women graduate faculty on several midwestern campuses. Women doctoral candidates are queried about who encouraged them to pursue the advanced degree. Few women doctoral candidates indicate that they were ever encouraged to "go on". Of those who were encouraged, generally within the social sciences, the women indicate that it was a woman professor who first discussed the possibility, and offered encouragement. After the candidate has identified an interest and/or submitted an application, she frequently receives support from male professors and peers. In the latter case, most candidates indicate that the male professors and peers expressed some concern about home and family relations, and attempted to be "supportive".

Most men who have been questioned about encouragement for the doctorate have indicated that a major professor initiated the discussion, typically in the junior or third undergraduate year. This simple difference between the encouragement given and based on sex may be the factor which tends to cause an age differential among doctoral candidates, male and female, with the females tending to be older.

The goal of attracting more women to graduate degree programs is nationwide. It will require changes in attitude on the part of those who shape the young child's perceptions of self and educationally related adult roles; post-

secondary education will have to change the environment from the historically based, now invisibly supported male domain with systems of encouragement and support for male students; and, educational institutions will have to extend far beyond token appointments of women in leadership roles, and aggressively confront the formats of delivery of graduate programs.

These, with many other factors, may lead to increasing numbers of women, in proportionately greater numbers, to take advantage of the opportunities in graduate education.

RESOURCES

1. Astin, H.S., *The Woman Doctorate in America*, Russell Sage Foundation, New York, 1969, 196 pp.
2. Holmstrom, E.I., "The Few Who Dare: Undergraduate Women Who Aspire to be Administrators", Policy Analysis Service, A.C.E. (Mimeographed) 19 pp., 1976.
3. Howard, S., "Wanted More Women: Why Aren't Women Administering Our Schools?", National Council of Administrative Women in Education, Arlington, VA, 1975, 53 pps.
4. Lincoln, S.A. and Hefner, R., Eds., "Sex Discrimination in Education Newsletter", Department of Psychology, University of Michigan, Ann Arbor, MI 48109.
5. Project on the Status and Education of Women, "On Campus with Women", No. 14, June 1976, Association of American Colleges, 1818 R St., NW, Washington, DC 20009.
6. Rossi, A.A. and Calderwood, A., (Eds.), *Academic Women on the Move*, Russell Sage Foundation, New York, 1973, 560 pp.
7. Tidball, M.E. and Kistiakowsky, V., "Baccalaureate Origins of American Scientists and Scholars" Science, Vol. 193, pp. 646-652.
8. U.S. Department of Labor, *Women Workers Today*, U.S. Department of Labor, 1976.

A FIVE-YEAR EXPERIMENT IN AFFIRMATIVE ACTION AT THE OHIO STATE UNIVERSITY

Frank W. Hale, Jr.

The graduate school of The Ohio State University serves 114 departments which offer the Master's degree and 85 departments which offer the Ph.D. degree. The enrollment on campus is approximately 51,000 students; the graduate school enrollment is approaching 9,000 students. I have been asked to discuss "Opportunities for Minorities in Graduate Education at The Ohio State University." Permit me to rephrase the topic as "A Five-Year Experiment in Affirmative Action at The Ohio State University."

THE PROBLEM

Subsequent to the campus uprisings of 1968 and 1970, I was invited to become a member of the administration of the graduate school at Ohio State in the Summer of 1971. At that time, there were fewer than 200 full time minority group students among the 7,000 or so graduate students on campus. Upon inquiring about the lack of black presence among the graduate student population, I was informed by departmental administrators that they could not locate qualified black students who could meet the admissions requirements at Ohio State. Limited as the pool of available black candidates were, I found the statement both disconcerting and distressing. For having served in black higher educat on for twenty years prior to my connection with Ohio State, I was fully aware of the products of black institutions, which though unheralded, have made a most magnificent contribution to higher education. It must not be forgotten that the vast majority of black professionals, physicians, lawyers, teachers, business persons, and others completed their undergraduate degrees at these black institutions. And the background preparation which they received at these black colleges and universities was validated by the most prestigious universities of America and from around the world from which they later received their postbaccalaureate graduate and professional degrees.

THE CAUSE

The problem of limited minority representation among graduate students at Ohio State was due to a variety of factors. While black Americans represent about 12 percent of the total population, blacks represent only six percent of the actual composition of the total college and university enrollment. In short, blacks are only half-way keeping up with themselves on the ladder of educational advancement. Of course, there are also certain disciplines that historically have been considered "off limits" for blacks which has helped to maintain a limited pool of prospects in mathematics, health sciences, engineering sciences and in some of the professions. The American Chemical Society reports that blacks make up only 1.1% of all practicing chemists. Less than one percent of the 40,000 engineers graduated annually are black. There is only one black physician for every 4,298 black citizens compared to one white physician for every 649 white citizens. There is one black attorney for every 4,000 black Americans compared to one white attorney for every 680 white Americans. There is one white dentist for every 1,982 white Americans, and there is one black dentist for every 8,400 black Americans. The problems of black representation are even more critical in such professions as optometry, pharmacy and veterinary medicine. And the earlier Bryant study reminded us that the of nearly 10,000 doctorates that were awarded annaully during the late sixties, only about 0.8 percent were awarded to black Americans.

Thus, it became clear that dramatic innovative steps would have to be taken to implement a program aimed at achieving parity and equity for minority students who were seriously underrepresented at The Ohio State University. The Crossland report on *Minority Access* identified both the need and the importance of designing programs to counter the underrepresentation and the underutilization of minorities in the academic community.

It was the post-King assassination era that produced the explosive climate which created a series of critical campus situations that made it possible for white institutions to make an uneasy peace with blacks. And The Ohio State University was no exception. If not out of a sense of humanity, certainly, out of a need to meet the demands of black students and to quell the violence and destruction on campus, the University reacted instinctively to its predicament.

Earlier, I mentioned that black colleges and universities historically have been a gold mine for black talent, and that is where we began. In fact, we borrowed a chapter from the Woody Hayes story. Woody Hayes has built a football empire at Ohio State over the years. As you know, he certainly does not wait for the best football players in the country to apply to him. To the contrary, he finds out where the best players are, seeks them out, and uses every plausible persuasive technique in order to recruit them. And so we assumed that this approach to an extra-curricular activity ought to be good enough for academe itself.

The whole concept of affirmative action from my perspective suggests the need for assertiveness and the use of positive initiatives in an effort to attract minorities to an institution. It is not enough to declare that an institution is in the business of providing "equal opportunity" to all applicants—that if students apply, they will receive fair and equitable consideration. A college or university that has had a pattern of historical neglect or discrimination with respect to minorities has some "image building" to do. And if it expects minorities to accept its statement of affirmative action commitment, it must do an about face, and run just as rapidly in the right direction as when it was running in the opposite direction.

Thus, The Ohio State University graduate school began an intensive search for minority talent in the summer of 1971. A two-pronged recruitment program was initiated. The first part of the program involved visitations to black campuses all over the nation to interview students and to inform them of Ohio State's new commitment and of graduate program possibilities and fellowship opportunities at the University. At that time, the fellowship program included a package of approximately 40 five-year fellowships leading to the Ph.D. degree valued at $20,000-$25,000 each. The second feature of the recruitment program was the institution of an annual graduate school visitation days' program, a two-day program in which fifty black colleges and universities are invited to send their five highest ranking seniors (with a 3.00 or above on a 4.00 scale) to the Ohio State campus. This program is now an important tradition and an annual event on the graduate school calendar.

The visitation days' program always includes an opening convocation when the 250 honor seniors are informed about admissions procedures, housing,

financial aid opportunities and student services. On the second day, students tour the academic departments of their interests to confer with faculty, to see departmental facilities and resources, and to receive some indication as to the prospect of their being admitted into the graduate school with financial support. Following a luncheon with members of the graduate faculty, the students meet with graduate students to discuss all aspects of graduate student life. The capstone of the two-day visit is the visitation days' Banquet attended by the honorees, faculty members and administrators, fellows-in-residence, and community leaders.

Since the talent search began in 1971, the results have been impressive. Black enrollment in Ohio State's graduate school has risen from 200 to approximately 650 in 1975. The fellowship program was modified in 1973 when the University began awarding 100 One-Year Minority Master's Fellowships annually.

Also in 1973, the Graduate School published a booklet entitled, *They Came and They Conquered*. It is a biographical compilation of Ohio State University black alumni who have established successful career profiles. The idea was conceived from students on black college campuses when they inquired, "Who are the blacks who are the graduates of Ohio State, and what are they doing?" Most knew of former black athletes such as Jesse Owens, Mal Whitfield, or Paul Warfield, but few were aware of such distinguished alumni as Judge Robert Duncan, Dr. Helen Edmonds, Dr. Samuel Cook, Dr. Delano Meriweather, or Chancellor Charles Lyons, Jr.

To date, 303 fellowships have been awarded to black students compared to the 12 black students who were on fellowship in 1971. Already, 194 of these fellowship awardees have been awarded graduate degrees. This figure represents a success rate of 64 percent of those who have received fellowships, and there are approximately thirty students among the aggregate who are still doing advanced work toward graduate degrees. It is expected that nearly 75 percent of those awarded fellowships will complete at least one graduate degree. During the summer commencement (August) of 1976, 101 blacks were awarded graduate degrees (24 Ph.D.'s and 77 Master's). They represented 10.3 percent of the 975 students who were awarded graduate degrees.

No doubt these students would not have been able to achieve the degree of success which they did, without some of the special support efforts that were designed to enable them to survive rigorous academic demands.

During the first week of school each autumn quarter, the graduate school sponsors a minority orientation conference. Focus is placed on survival strategies including counseling services, university resources for assistance in mathematics, statistics, and laboratory procedure. Advice is given with respect to peer tutor support through the Black Graduate and Professional Student Caucus. Cultural support is given as representatives from the department of Black Studies and Office of Black Student programs, identify offerings which are available on a continuing basis for minority students with minority faculty and administrators. Following the official program, a reception is held to facilitate the acceptance—inculturation process. This initial welcoming process often establishes a "point of contact" for students that will prove meaningful throughout their tenure on campus. These contacts are often extremely

supportive on such an immense university campus for students who have come from small family-type institutions.

The graduate school awards a limited number of two-year special university fellowships. These fellowships provide minority students an additional year of support to take undergraduate or prerequisite courses if, because of inadequate college preparation, they lack the background to undertake graduate work immediately.

Course loads may also be reduced, even for fellowship students, if it is deemed to the advantage of the student, providing him with an opportunity to master fewer subjects rather than compromising his program by an obvious overload.

CONCLUSIONS

The affirmative action efforts of The Ohio State University graduate school suggest the Following:

1) That there is still a largely untapped reservoir of minority students that are prime prospects for post-baccalaureate education if imaginative efforts were used to attract them.
2) That black colleges and universities are a major resource of available minority talent.
3) That qualifying examinations, such as the Graduate Record Examination, serve well as diagnostic instruments, and may be used to identify gaps in the student's learning experience; but the cumulative grade point average, the student's personality, his maturity and leadership, combine to give a predictive accuracy far more beneficial than other instruments.
4) Major institutions that have key minority faculty and administrators with whom minority students can "touch base" and identify have helped to create a positive support factor for the students.
5) Major institutions should expand the "buddy system" and begin to interface with their peer and professional counterparts at black institutions.
6) An institution must recognize that affirmative action resolutions are meaningless until that institution is prepared to put its cash where it says its commitment is.

The minority recruitment, minority fellowship program, and the graduate school visitation days are evidence of the University's successful efforts in affirmative action. Such programs are the key to the minority manpower shortage. They include a fully-developed manpower strategy that flows from education and job training into equal opportunity and full employment.

COLLABORATIVE EFFORT FOR THE PURPOSE OF INCREASING THE OPPORTUNITIES OF MINORITIES AND WOMEN IN HIGHER EDUCATION

Patricia Moore Harbour

Distinguished Council members, guests and panel.

It is a personal pleasure for me to meet with you today. I am pleased to know of your concern and commitment to increasing opportunities in graduate education for minorities and women.

This topic has been and is a Secretarial priority at the Department of Health, Education, and Welfare. For the past fifteen months, Dr. Joffre Shisenton, Special Assistant to the Secretary for Educational Policy and I have devoted a major portion of our energies to this initiative.

It is indeed timely that we take this occasion to focus on this relevant subject and seriously consider resolutions to the problems facing us and the nation in this regard.

When we look over the historical development of equal access and equal educational opportunity, we find—we have moved from a period where there were no educational opportunities for minorities, or women, *to* dual segregated systems, to programs which encouraged integrated settings, *to an era* of reverse discrimination. We have discussed, negotiated, marched, legislated, and ajudicated for access of minorities to higher education. The courts in the past have upheld cases of programs passing the strict scrutiny test and those attempting to provide a remedy for past discrimination.

From *Defunis* to *Flanagan* v. *Georgetown* to *Bakke* vs. the *Board Regents of the University of California*, we find ourselves faced with the questions—how do we insure the educational opportunities and equal access of minorities and women, and meet affirmative action requirements in their employment—without being in violation of the fifth and fourteenth fourteenth amendments—in "reverse"? The Executive Order states you must comply or lose Federal funds; the universities bemoan the lack of qualified minorities available and therefore, affirmative action cannot be met. White students are carrying their cases to the courts and the "theory" of reverse discrimination threatens many programs in colleges and universities that are evidence of a commitment to the elimination of inequality in higher education. At which end of the spectrum does the theory of reverse discrimination leave us? If the answer is—where we were in the beginning—then how do we achieve remedies for past discrimination?

Against this backdrop we find professional associations, universities, community organizations, foundations, congressional staffs and yes, the Secretary of the Department of Health, Education, and Welfare concerned about women and minority faculty representation in the diverse disciplines, concerned about equal access and equal educational opportunity, and concerned about the need for more Ph.D. Candidates among the underrepresented groups.

In the past few months, the Secretary of HEW has led the way for internal staff probing and analysis of what can be done under existing legislation and

existing program authority to respond to this national problem. The appropriate staffs within the Department are looking for answers to the legal questions raised in light of recent court rulings.

The Secretary has met with a number of interested organizations involved in methods to increase the numbers of minorities in higher education. University presidents and other interested individuals continue to be in communication with the Secretary offering suggestions and sharing ideas for solutions to the problems. The HEW Secretary continues to encourage a meaningful dialogue nationwide.

On September 30 of this year, Dr. David Mathews convened a planning conference that was designed to develop ways in which this problem could be met effectively.

That session was attended by leading educators, government officials, Foundation officials, university presidents, chancellors, deans, representatives of community organizations and executives of professional organizations. The recommendations from that fine group of participants were:

1. The creation of competitive institutional grants with awards based on a demonstrated commitment to increase women and minority enrollment and graduation rates. Such grants would include funds for student fellowships and program administration.
2. The creation of merit based fellowships funded jointly by government and the private sector, for promising minority and women bachelor degree holders.
3. A review of job related requirements to prevent slanting against minority and women applicants.

This distinguished group of participants also endorsed and proposed national expansion of a model developed by the American Foundation for Negro Affairs (AFNA). The concept of the AFNA plan is to identify and select potential students at the end of their sophomore year in high school as AFNA scholars. With the collaborative efforts of community and university practitioners, officials of the public schools and institutions of higher education and the voluntary services of many, AFNA scholars are provided daily tutorial and preceptor experiences through graduation from high school. AFNA scholars receive counseling assistance in the selection of colleges and universities and many other support services. After graduation from high school, AFNA scholars continue to receive support services and summer tutorial experiences throughout undergraduate and graduate or professional studies.

AFNA scholars pass, with flying colors, standardized tests and other artificial criteria required for admission to college, graduate or professional school. The fear of lowering out standards does not exist for the students who have participated in this program. They meet the standards as prescribed by the university.

In that planning session, it was asked that special emphasis, be given to precollegiate programs, recruitment and selection of minorities, minority student and faculty retention, financial assistance, attrition and the student not receiving financial support, and the role and importance of minority institutions in this effort.

Another recommendation was that legislation be drafted that would offer a comprehensive approach for resolving the problem—a design that would attempt to meet the long and short range needs.

The following activities are in progress as a result of the conference. . . .

a) Officials of the Department are looking at Title IX of the Higher Education Act for designing a graduate education fellowship program. Congress has never appropriated funds for this portion of the Act. And it remains, in the new Education Amendments. There is no appropriation language and there are many legal questions that must be addressed. Therefore, no program is foreseen for the immediate future.
Hopefully, Congress will see fit to appropriate funds and permit implementation of this portion of the Act which would in part be instrumental in adding to the pool of minorities and women.

b) The first draft of a proposal for possible legislative consideration has been written and is being circulated internally and externally for comment. The current draft attempts to respond to a comprehensive approach for meeting the needs. Such a proposal, prior to any final draft must pass close legal scrutiny. A major concern is the recent judicial rulings and the case pending for a Supreme Court hearing.

c) We are presently in discussions with program officials to identify, if possible, potential areas that may be responsive to this issue within the purview of their current legislative mandates. No final determinations have been made.

When Dr. Mathews addressed the planning conference for the development of ways to increase the number of minority group members and women in higher education, he called for a national strategy.

"A national strategy", he stated, "would speak not only to the obligations of the Federal government but to those of the educational system, the graduate faculties of the universities and the professional associations." "HEW", the Secretary said, has been and is committed to the goal of increasing the supply of minorities and women with graduate and professional degrees, but—"a sound national policy must be more comprehensive than any federal policy could be".

I was asked here today to share with you what HEW is doing with regard to this matter; What can HEW do to resolve this issue and what does HEW foresee in the future? In light of the Secretary's prescription of a national strategy to meet the needs of this problem, what can you do—the universities—large and small, minority and non-minority institutions, the professional associations, community organizations, and foundations?

The institutional keeper of the gates must be sensitized not only to produce minorities through creative recruitment practices but in the selection process as well. These same decision-makers must become aware of the need to eliminate psychological and other barriers that inhibit potential academic success for students and discourages retention. The "old buddy system"—unless expanded on a conscious level will continue to be deterrent for the inclusion of minorities and women. I believe HEW has an important role to play. That role includes continuing to fund special programs and carrying out the law. Leadership, however, should come from the colleges and the community rather than

the Federal bureaucracy. Moreover, as partners, committed to the purpose of meeting our individual and collective obligation to this society, what can we do to address together a problem that is of the mind and spirit of humankind?

The supply-side problem, the pool of available minorities and women is a problem shared by other institutions as well as the educational community. Wouldn't it be more effective if we approached this problem as a common predicament rather than as a unique affliction?

Such a collaborative effort between the many diverse entities and institutions of our society working in concert as partners would make an unprecedented impact. The benefits, to society in general, would be greatly enhanced through the development, training, availability and potential productivity of the wealth of human resources that is currently underutilized and underrepresented. The higher education community, as well as, the Federal bureaucracy is obliged to amplify these issues as a priority agenda item where-ever the debates on higher education take place.

Dr. David Mathews, in the October issue of Change said and I quote. . . .

"Movements after all, are made of qualities essentially spiritual and intellectual. I make this point because the responsibility for seeing and understanding problems, the responsibility for the kind of vision that allows us to endure aggravating circumstances and eventually triumph over them, the responsibility for dealing rationally and compassionately with perplexing problems and not yielding to frustration–all of these reside, if anywhere most particularly with universities".

To this effort, I commend—your mind, and your spirit.

MINORITY GRADUATE SCHOOLS AND THEIR ROLE IN INCREASING THE SUPPLY OF MINORITIES AND WOMEN IN HIGHER EDUCATION

Oscar A. Rogers, Jr.

In the United States there are thirty-two historically black graduate schools which could well extend invitations to other graduate schools to join with them in increasing the number of minorities in higher education. Graduate education started at several minority schools nearly fifty years ago. Experienced in and committed to educating minorities, the schools are located in fourteen states and the District of Columbia. Twenty-five of the schools are accredited by the Southern Association of Colleges and Schools. Six schools are members of the Middle State Association of Colleges and Schools, and one is a member of the North Central Association of Colleges and Schools.

Thirteen schools are members of the Council of Graduate Schools in the United States. These schools are widely distributed in eight states and the District of Columbia—Atlanta University, Georgia; Federal City College and Howard University, District of Columbia; Fisk University and Tennessee State University, Tennessee; Morgan State University and Coppin State Col-

lege, Maryland; Southern University, Louisiana; Texas Southern University, Texas; Jackson State University, Mississippi; Tuskegee Institute, Alabama; North Carolina Central, North Carolina; Virginia State College, Virginia. The thirteen CGS members offer a variety of master's degrees in the arts and sciences, and some in business and education.

The remaining black graduate schools offer some graduate programs in the arts and sciences, and comprehensive programs in education.

These black graduate schools are geographically availabe to facilitate inter-institutional doctoral degree programs. Cooperative efforts can take the form of bi-laterals, consortia, regional planning groups and student anf faculty exchange mechanisms. Such arrangements should prove beneficial to both levels of institutions. A workable model will be suggested along with a national policy which has as its goal increasing the supply of minorities and women with graduate and professional degrees.

Undoubtedly the nation's largest amount of potential minority talent for graduate studies is located at the thirty-two historically black graduate schools.Their enrollment during 1976-77 is more than 22,000 black men and women. Most students are receiving intensive preparation for doctoral degree work. A number of studies reveal that a significant number of minority recipients of doctorates received their bachelor's degrees from black colleges. Similar studies focusing upon the sources of master's degrees earned by minorities will show an increasing number who took their first graduate degrees at one of thirty-two black graduate schools. For example, twenty graduate faculty members at Jackson State received their doctorates from seventeen universities including Indiana University, John Hopkins University, Cornell University, Michigan State University, Kansas State University, Rutgers University and the University of Florida. Southern University of Baton Rouge lists six of its master's degree graduates and holders of doctorates as graduate faculty members. Twenty of Southern's graduate faculty members received master's degrees from seven black graduate schools and their doctorates from seventeen prestigious universities including Howard University.

Rigorous research work and teaching experience at the black graduate schools make their graduates excellent risks for fellowship assistance from doctoral granting universities.

In addition to their enrollees and graduates are their junior undergraduate faculty members located in the minority colleges and universities. For the most part, these faculty members are serious students of their disciplines.

Fully aware of these sources of good graduate prospects, Southern Illinois University has entered into informal cooperative arrangements with several universities including Jackson State University, providing faculty developmental support for junior faculty members.

Recently by means of a Trailways bus thirty faculty members, department heads and administrators from Jackson State rode the 900 miles (to and from) SIU to explore ways and means of increasing graduate studies opportunities for their students. The president of SIU, chief administrators and faculty members exchanged ideas with the JSU group for a day.

The trip to SIU was one of a series of exchanges at all levels. The President of SIU had visited Jackson State earlier.

One of the major outcomes of the various dialogues has been a proposal directed at improving minority access to research careers. Funds are being sought to improve science education at Jackson State with cooperative assistance from SIU. The science area was chosen as a focus for this project because it is well known that there is a severe shortage of qualified researchers from minority populations who have been educated at the doctoral level in the life and physical sciences.

The objective of the cooperative efforts between the two universities is to encourage black students to undertake advanced training for careers in research, both in academic and industrial settings. Secondary benefits include the enrichment of Jackson State University, with advantages redounding to the improvement of undergraduate education in the sciences, faculty enhancement for Jackson State University, and enrichment of the social and scientific environments of Southern Illinois University at Carbondale.

Jackson State University and Southern Illinois University at Carbondale are ideally suited for a cooperative venture of this nature. Jackson State University is a major recipient of federal funds for the improvement of science education, and has some departments of considerable strength in this area. Southern Illinois University at Carbondale has well-established doctoral programs and extensive research activities. Furthermore, Southern Illinois University at Carbondale has a tradition and a history of success in cooperation with black institutions throughout the South on both the undergraduate and graduate levels.

It is clearly impractical for any single pair of institutions to address all of the needs in advanced science education. An initial meeting at Jackson State University on March 15, 1976, resulted in the identification of that institution's departments of Biology and Chemistry as those having the needed resources of faculty, equipment and research activities to support advanced graduate work on a cooperative basis. The counterpart departments at Southern Illinois University at Carbondale are the departments of Botany, Zoology, and Chemistry and Biochemistry, all of which offer well-established doctoral programs and are staffed by experienced faculties with a sound record of research activities. Representatives of these departments from the respective universities have agreed to participate in further discussion of possible cooperation in doctoral education.

The planning effort will involve the following activities:

1. Determination of the projects to be involved in achieving the goal of improving minority access to research careers. Projects which will be considered are:
   a. Establishment of a cooperative doctoral program in the disciplines specified in this proposal. Under this program students would be jointly accepted by both institutions after receipt of the bachelor's degree, a doctoral program committee would be appointed for each student consisting of faculty members from both institutions, and the completion by the student at Jackson State University of the master's degree, and possibly post-master's. Following this, the student would go to Carbondale for work on the SIU campus, fulfilling the normal period of Ph.D. residency and carrying out a dissertation.

b. Development of cooperative research projects between faculty members of Jackson State University and Southern Illinois University at Carbondale in areas of common training and interest. The advantages of this approach would be twofold: first, the research capabilities of Jackson State University would be enhanced, and second, students who are enrolled in a cooperative doctoral program would be enabled to begin work on a research project leading to a dissertation study without having to make significant changes in their activities at the time of their enrollment at Southern Illinois University.

c. Establishment of an ongoing series of faculty exchanges through seminars, colloquia, and concentrated courses which would permit the enrichment of the education of students at master's level at both institutions through exposure to faculty members from the other institution. Thus, faculty members from SIU go to Jackson State to present their material to students, and faculty members from Jackson State would to to SIU. This would have the advantage of enabling students who do not go on to the Ph.D. to be further stimulated toward research by becoming acquainted with the activities at the other institution. Similarly, contacts can be made with researchers in industry and through RESA to provide a series of lectures and colloquia for students to alert them to the opportunities available for research in industry.

d. Establishment of an ongoing relationship between the graduate faculties and graduate councils of the two institutions to enable the graduate faculty members of Jackson State University to gain experience in governance of doctoral programs and for the graduate faculty of SIU to gain experience with governance problems in developing institutions.

2. Identification of the number of participants, both faculty members and students, in the creation of a timetable and schedule for the development of the program.
3. Identification of the administrative and governance structure necessary to carry out the projects including advisory committees, appointment of staff, and commitment of faculty personnel from both institutions.
4. Establishment of appropriate interactions with other institutions of higher education, industries and public agencies to facilitate minority access to research careers.
5. Identification of possible contacts with industrial personnel and others outside the University who would be appropriate as contact persons with agencies and industries who would employ the Ph.D. products of the research training.
6. Determination of activities which will be required to publicize benefits of the program to potential students:
   a. Conduct of surveys as needed to determine the attitudes and interests of potential students at Jackson State University and other predominantly black institutions in the Jackson area.
   b. Development of a capability for advising and counseling students through the establishment of recruitment committees in the appropriate disciplines.
   c. Establishment of a series of public seminars and open house demon-

strations at the Jackson State University campus to acquaint undergraduate students with the program, it purposes, and benefits.

7. Identification of available and additional resources necessary to accomplish the goals.
8. Creation of an environment within each campus to facilitate successful completion of the activities undertaken to achieve the objectives.

The responsibilities for implementation of activities during the planning phase will be divided as follows:

1. The Dean of the Graduate School of Jackson State University and the Associate Vice President for Research and Dean of the Graduate School of Southern Illinois University at Carbondale will be jointly responsible members of the university community at each location.
2. The executive committee of the Graduate Council of each institution will serve as the faculty governance agency responsible for coordinating the overall policy implications and effects of the program, and for developing relationships between the faculties and their governance bodies.
3. Each of the participants departments and/or degree programs will identify members of the respective Graduate Faculty, not to exceed three from each department at SIU or three from Chemistry and six from Biology at JSU, who will be designated as the contact persons to relate to their counterparts at the other campus.
4. The contact persons and the respective Executive Committees shall constitute a planning task force, co-chaired by the Graduate Deans.

We strongly recommend this rather involved approach. It is designed to protect the integrity of both institutions as equal partners. It is in keeping with Secretary David Matthew's call for a national policy to increase the supply of minorities and women in higher education. Such a policy includes cooperative efforts at the state, regional and national levels. It demands combined efforts of public, private and federal funding sources. The thirty-two schools have accepted their role as feeder institutions. They invite research oriented institutions to consider full partnerships with them to implement a national policy.

Concurrent Workshops

Thursday, December 9, 1976, 10:45 a.m.—12:30 p.m.

WHY REINVENT THE WHEEL?

THE FINDING OF CURRENT INFORMATION

Moderator: George W. Kunze, *Texas A&M University*
Jonathan D. Fife, *Educational Resource Information Center,*
Clearinghouse on Higher Education

Jonathan D. Fife

From the beginning of time, there have been three ways to approach decision-making. A person may make a decision based on: the decisionmaker's own knowledge and wisdom, advice gathered from colleagues, or information gathered externally. In management there is a theory of "satisficing" decisionmaking. This theory proposes that it is impossible for an individual or organization to know or consider all the possible information that is needed to make a 100 percent rational decision. Therefore the individual or organization is forced to make a decision based on the limited available information. Hence, it is only possible to make a satisficing decision versus a decision based on complete knowledge.

Obviously, we all make satisficing decisions every day of our lives. Sometimes the decisions are of a minor nature and need little additional information beyond our own wisdom. However, there are times when the decisions are of majestic proportions, with the consequences of the decisions affecting large numbers of people. It is at this time that it is necessary to have available as much information concerning the problem and potential solutions as is possible. Fortunately, with the development of computers and remote terminals the accessibility to specific information is now a reality even for the smallest of institutions.

My brief address today is intended to share with you the background and potential of one particular information system that can help you all go beyond the knowledge and wisdom of your institution and your colleagues. Information that will help you make decisions based on greater experiences and more data than you have ever had available before. My concluding remarks will also briefly detail several other sources of information that, as of now, still remain essentially unused by most higher education institutions.

In the United States there exists a national information network funded by the National Institute of Education called the Educational Resources Information Center, more commonly known by its acronym ERIC. To begin let us consider a few ideas on the origin and need for the ERIC system, particularly its value for the diverse postsecondary education system.

As education grew in the fifties and early sixties, it became apparent to Congress that much of the money invested in educational research was not bearing fruit in reform and improvement of the practice of education. Many reasons were advanced for these disappointing results, but the most damaging one seemed to be that new information and promising findings that were generated by the educational research community, especially government-sponsored research, were not moving to those who could put the new ideas into practice. In response to this shortcoming, Congress authorized the U.S. Office of Education to establish ERIC as a national dissemination network to accelerate the distribution of educaional information.

During the evolution of the ERIC information network, four general goals were identified. The first goal has already been cited; namely, to establish an information system that would disseminate findings of government sponsored research to those who could apply these findings to everyday educational operation.

In the early development of ERIC, it was recognized that there was an additional vast quantity of information concerned with education that was not coming to the attention of the educational. This material, usually not produced in a hard-bound book format, sold commercially, or circulated widely, is sometimes referred to as "fugitive publications." The word "fugitive," defined as hard to find, accurately described these publications. Examples of fugitive documents are institutional planning papers, research reports, annual reports, and legislative hearings. The second goal of the ERIC network therefore was to identify these fugitive documents, acquire them, make their existence known, and provide available to those who wished to have them.

As the ERIC information network became more established and began to receive comments from the educational practitioner, it became apparent that research findings could be used only by a small number of people. A larger number of educational administrators and teachers were in need of information that would help them meet their day-to-day responsibilities. In other words, they needed publications and resources they could apply immediately to their own work environment. The third goal of the ERIC network, then, was to identify these applied resources, such as exemplary administrative manuals, practical management information systems, various curriculum materials, and other teaching aids, and make the existence of the resources known.

As more educators used the ERIC system, the need to quickly locate specific information appearing in the various educational periodicals became apparent. The fourth goal of the ERIC network was to identify the various journals concerned with education, and to catalog and announce the articles appearing in these journals.

The Technology of ERIC

Two challenges faced the constructors of the ERIC system: first, how to cope with an exploding volume of studies, reports, journals, and other forms of information; and second, how to make this information available throughout the United States to clientele whose widely varying needs, people such as the research scholar, the policymaker, and the classroom teacher.

Because of the great number of new reports or documents concerning educa-

tion becoming available, it was evident that manual indexing and retrieving methods would not be adequate; it would be necessary to create a machine retrieval method in addition to a manual retrieval system. Thus, *from its inception*, this information gathering and disseminating system was designed to develop a computerized data base. Descriptive information about documents was converted into a format that could be both searched directly by hand and through automatic data processing equipment. The system was designed so that a researcher could command a computer to scan literally thousands of terms indexing hundreds of thousands of documents and identify just those documents of potential use to him.

To make available yet manageable this exploding volume of publications, a decision was made to store and distribute copies of the publications on a form of microfilm called microfiche—which is a 4" × 6" plastic card containing photographed pages of print reduced in size but easily read by use of an enlarging machine or reader.

The Organizational Structure of ERIC

The ERIC network is a unique arrangement of government, professional, and commercial organizations cooperating to achieve the dissemination goals of the system. The ERIC system is funded by the National Institute of Education, a part of the U.S. Office of Education. The top organizational level of ERIC, known as Central ERIC, is part of the National Institute of Education and is responsible for establishing standardized operating policies and procedures, awards contracts for the operation of other components of the ERIC System, and constantly reviews the operation of the total system.

The second component of the system is a network of specialized clearinghouses operated by nonprofit organizations, such as professional associations and universities; for example, the Clearinghouse on Higher Education is operated by The George Washington University. Currently there are sixteen clearinghouses within the ERIC network. Each Clearinghouse is awarded a contract on the basis of demonstrated expertise in a specific subject matter field. The subject matter fields have been established through Central ERIC based on three considerations: educational level, such as higher education or junior colleges; academic disciplines, such as science, mathematics, or social sciences; and educational problem areas, such as career education, rural education, small schools, and urban education.[1] Taken as a whole, the ERIC Clearinghouse network is designed to cover all areas of education.

Each Clearinghouse is responsible to identify and acquire the report and journal literature in its field; index and abstract that literature; and produce a document résumé for inclusion in the two monthly ERIC bibliographic journals, *Resources in Education* and *Current Index to Journals in Education*. A document résumé contains all the normal bibliographic information plus a list of indexing terms and an abstract of the contents of the document. Annually, the Clearinghouses cover more than 35,000 new documents for *Resources in Education* and select more than 20,000 new journal articles from the 700-plus journals reviewed regularly for the *Current Index to Journals in Education*. The Clear-

1. A list of the sixteen clearinghouses appears on page 87.

inghouses are also responsible for preparing publications that summarize the important developments and trends in the literature of the field assigned to the Clearinghouse.

After a clearinghouse has processed its documents, a commercial contractor, known as the ERIC Document and Reference Facility, reviews the document résumé and produces computer tapes of this descriptive bibliographic material. The computer tape is then used by the Government Printing Office to print the monthly *Resources in Education*. These computer tapes are also sold to individuals or organizations who wish to be able to search this bibliographic information using their own computer. The geographic dispersion of these organizations help to bring the capability of computer searching even closer to the individual.

Original copies of the documents to be made available through ERIC are shipped to another commercial arm of the system, the ERIC Document Reproduction Service, which photographs the originals and prepares microfiche reproductions for mailing throughout the world. Upon request the ERIC Document Reproduction Service will prepare and mail either a microfiche or xerographic copy of an original document for an inexpensive fee.

The *Current Index to Journals in Education* is prepared under contract by a commercial publisher. This contractor receives the descriptions of journal contents from each clearinghouse and assembles them into the monthly bibliographic index to periodicals.

At this point, it might well be asked, what is the rationale for such a complex system, which involves government, nonprofit organizations, institutions of higher education, and commercial enterprises. An important part of the rationale is that certain functions, such as the operation of a clearinghouse in a specific area, or the provision of technical services such as microphotography, can best be performed by specialists. Perhaps more basic is the objective to do everything possible to minimize direct government influence of education. Also, since various agencies and institutions compete for contracts to perform these services, the government overseeing arm, Central ERIC, is in a position to choose the best bidders and to secure the finest service for the government and ERIC users at the most reasonable price.

The Unique Role of the Clearinghouse on Higher Education

Although each Clearinghouse in the ERIC system performs a core of similar functions, each clearinghouse is different by virtue of its specialized area and its separate management. This is true of the ERIC Clearinghouse on Higher Education.

Foremost among the objectives of the Clearinghouse on Higher Education is the identification and acquisition of important new documents and studies relevant to higher education. To identify these studies, the Clearinghouse systematically scrutinizes hundreds of national and international bulletins, newsletters, professional papers and journals, and conference proceedings. In addition, letters are sent to scholars and members of professional organizations on a regular basis, encouraging the recipients to send new studies to the Clearinghouse as they are completed. This is a forceful, positive acquisition effort. At the Clearinghouse, documents are reviewed for their scholarly compe-

tence, contribution to the literature, and technical reproduction quality. Then, a small staff of abstractors and indexers prepare a document résumé for each publication, including index terms and bibliographic information that will enable users to locate the documents of interest to them by means of *Resources in Education*. The indexing vocabulary is centrally controlled and kept standardized through the use of the *Thesaurus of ERIC Descriptors*.

Along with what might be considered the more routine acquisition and selection of higher education documents are efforts by the Clearinghouse to develop specialized collections in specific areas of higher education. These areas are usually identified by higher education organizations who have continuous need for specific types of literature. An example of this effort is a special collection of collective bargaining contracts that has been put into the system and is now available in microfiche form. Through a cooperative arrangement with the Academic Collective Bargaining Information Service at the Association of American Colleges, the Clearinghouse is able to constantly keep this collection updated. Another specialized collection is of selected faculty handbooks. This collection through a cooperative arrangement with the American Association for University Professors is also constantly being updated.

Journal articles are also read, annotated, and indexed so that potential readers of the articles may locate them through the monthly bibliographic journal, *Current Index to Journals in Education*. Currently the Clearinghouse reviews 40 major journals. While most of these journals are produced and are concerned with education in the United States, many are published in other parts of the world. For example, the Clearinghouse regularly covers the *Canadian Journal for Higher Education*, the journal on *International and Cultural Exchange*, *Medical Education* (formerly entitled *British Journal of Medical Education*), and the *Australian University*.

In addition to these journals, other, less educationally related journals may be reviewed for pertinent articles. For example, the Clearinghouse has a special arrangement with the Association of College and University Attorneys that permits the identification of articles on law and higher education appearing in all law journals published throughout the United States. This one arrangement allows the Clearinghouse to review over 300 additional journals for possible articles concerning higher education.

Another important function of the Clearinghouse is the preparation of state-of-the-art papers or literature reviews designed to analyze the most important literature and pertinent information about critical problems and issues in higher education, to summarize and interpret the critical components of the problem, and to suggest some policy alternatives. Uses for these publications are as varied as the community of persons involved in higher education. One scholar may seek a brief introduction to the literature on a topic, a student may seek a review of important developments, and a decisionmaker may want a concise survey of the important elements of a problem he or she faces. One important purpose each review may serve is to be the centerpiece for discussion when scholars and policymakers gather. Currently, the Clearinghouse on Higher Education produces two review series: the *Research Report* series, which contains in-depth, conceptual treatments of an important and contemporary problem, and the *Research Currents* series, which focuses on more limited

subjects in a shorter format. Both series are published in cooperation with the American Association for Higher Education.

Another task of the Clearinghouse is to provide members of the educational community with an opportunity to learn to use the ERIC system and to utilize the bibliographic resources available, particularly as they bear on the processes of scholarly topic formation and review as well as policy analysis. To accomplish this task, members of the Clearinghouse staff regularly give seminars and training sessions at colleges, universities, and professional gatherings. Because the Clearinghouse has on its staff several scholars in the field of higher education, it also functions as a connecting point for those persons interested in various problems in higher education. Staff members actively follow interests related to higher education, presenting papers at scholarly conferences, and participating in professional meetings to insure that their professional knowledge keeps pace with developments in the field.

Another service of great practical value offered by the Clearinghouse is a customized, computer-based search of resources on higher education made available through ERIC. It is possible for the Clearinghouse staff to quickly identify one hundred or more documents related to very specific issues; for example, "how personalized systems of instruction have influenced teaching styles" or "granting academic credit for off-campus learning." This service assists scholars, administrators, students, practitioners, legislators, and the many organizations concerned with higher education to move through the vast quantity of educational information in the ERIC data base and identify information that specifically pertains to their concerns.

To summarize, the Clearinghouse on higher education, as a component of the ERIC information dissemination system, is a center for the identification and acquisition of new and important information on higher education; the workplace for the indexing and abstracting of that information so that others may readily locate and utilize it; the producer of information analysis products that succinctly review the important elements of problems and issues in higher education; and a meeting place for scholars and practitioners concerned with common issues in higher education.

Evaluation of the ERIC System

Two questions that now need to be answered are: Has the ERIC system built an adequate data base? and Is it being used?

The first question is answered by some very impressive data. Since 1966, more than 115,000 documents (research reports, studies, reports on exemplary practice, bibliographies, and statistical summaries) have been indexed in *Resources in Education* and made available on microfiche to potential users throughout the world. Another 135,000 journal articles have been identified and cited in the *Current Index to Journals in Education*. From this total data base of 230,000 different publications, nearly 23,000 focus on some aspect of higher education, and more than 1,000 address issues directly concerning graduate and professional education.

As has been mentioned, the ERIC network of Clearinghouses are annually

adding to its data base approximately 35,000 documents to *Resources in Education* and 20,000 new journal articles ot the *Current Index to Journals in Education*. The Higher Education Clearinghouse itself annually reviews between three and four thousand of these publications.

Other data shed some light on the question concerning the use of ERIC. There are more than 700 major libraries in the world that have the entire microfiche collection and more than 6,000 organizations subscribe to *Resources in Education*. It has been estimated that during any one year there are more than 10 million separate uses of the ERIC system being made. The subscription sales of microfiche reproduction of documents number 15 million annually; in addition, an average of 100,000 copies of xerographic documents are sold to individuals. These figures support the international reputation that ERIC has gained as being the world's largest and most sophisticated dissemination system of educational literature.

Other Information Sources

I have spent most of my time this morning explaining the scope and activities of the ERIC information system in general and the Clearinghouse on Higher Education in particular. I have done this because the ERIC Network is, as I have said, the world's largest and most sophisticated computerized educational information system. However, I do not want to leave the impression that I think ERIC is the sole source for satisfying your information needs. There are three other information centers that I would like to draw your attention to and I encourage your use of them.

The first organization is called NEXUS, a part of the American Association for Higher Education. Originally started through a grant from the Fund for the Improvement of Postsecondary Education and now supported by the Ford Foundation, NEXUS supplies information concerning people who have knowledge and expertise in particular areas. The concept behind NEXUS was originally introduced by J. B. Lon Hefferlan who suggested the creation of a "people bank." Through his research, Hefferlan had come to the conclusion that most decisions are based on information derived from colleagues rather than printed sources. Since this pattern of information gathering appeared to be difficult to modify, there was a need to at least improve this system. One way to do this was to provide a mechanism that would improve the identification of experts. It was reasoned that if decisionmakers could then be encouraged to consult with these experts they would be better able to make more rational decisions.

NEXUS has developed a file of various higher education concerns and the people who have been identified as working with these concerns. As is stated in their latest brochure, "By linking callers with knowledgeable practitioners and existing networks, NEXUS acts as a clearinghouse to promote the sharing of experiences in the education community."

In summary, NEXUS has developed a telephone service that will quickly refer you to experts who can help in providing needed information and advice. And they provide this telephone service at *no charge*. For those who might be taking notes, the NEXUS telephone number is (800) 424-9775.

National Center for Educational Statistics

Until recently, current census data of the higher education community were not available or were available in a form that made it impossible for the individual institutions to apply it to their unique data needs. This situation has been greatly modified and improved through the development of the EDSTAT II Program developed by the National Center for Educational Statistics. Each year the National Center asks all the colleges and universities in the United States to respond to a set of questionnaires. This survey, formally known as the Higher Education General Information Survey or HEGIS, seeks such information as open and fall enrollment in higher education, degrees and other formal awards conferred, student enrollment in advanced degrees programs, institutional characteristics of colleges and universities, salaries and tenure of full-time instructional faculty, financial statistics for institutions of higher education, and inventory of college and university physical facilities.

In an effort to report more quickly and allow greater flexibility in anaiyzing the HEGIS data, the National Center for Educational Statistics has established EDSTAT II, which is a time-sharing computer system that permits users of standard keyboard terminals to interrogate the large data base provided through the HEGIS survey. This means tha an institution has maximum flexibility to acquire current statistical data in a form that would make it most useful to the instituiton. While this program is still in its formative stage, which is a nice way of saying that the system still has bugs in it, it does offer enormous potential to the individual institution. For further information concerning the EDSTAT II Program, it would be advisable for you to contact William Dorfman at the National Center for Educational Statistics, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

The Smithsonian Science Information Exchange

Knowing what specific research is in progress has two advantages. First, when developing policies, an institution is able to see if there is work currently being conducted in the areas of concern. Second, researchers in general can avoid duplication of effort. There is only one organization that I know of that has established continuing communication between government and nongovernment research funding agencies and is provided, on a regular basis, information concerning all new research projects. This organization is the Smithsonian Science Information Exchange. Currently they annually collect, index, and computerize somewhere between 85,000 and 100,000 records of research projects currently in progress. Like the ERIC system, the Smithsonian Science Information Exchange can identify research projects by their scope and provide a computer listing of such projects giving the project title, summary of project, supporting organization, and address and names of research investigators. While there is a modest charge for this service, it does provide a new dimension of availability of current information. For those who would like more information concerning the Smithsonian Science Information Exchange, they should contact Mrs. Rhoda Goldman, Chief, Behavior Science Branch, The Smithsonian Science Information Exchange, 1730 M Street, N.W., Room 300, Washington, D.C. 20036.

The purpose of this talk was to point out several sources of current information that are conveniently and economically available. We have heard often the phrase that decisionmaking should not be made in a vacuum. This is even truer now than it was in the past. It is also far easier now to not only come out of the vacuum, but to be able to identify specific information from the enormous supply. Through the use of computers or people banks it is now possible to quickly identify specific information to handle specific problems with almost painless ease. The information has been collected and is ready to be used. How well it is used and how often depends upon the extent that decisionmakers are willing to go beyond their customary and often parochial horizon.

LIST OF ERIC CLEARINGHOUSES

Career Education
Center for Vocational Education
Ohio State University
Columbus, Ohio 43210

Counseling and Personnel Services
University of Michigan
School of Education Building,
Room 2108, East University &
South University Streets
Ann Arbor, Michigan 48104

Early Childhood Education
University of Illinois
Urbana, Illinois 61801

Educational Management
University of Oregon
Eugene, Oregon 97403

Handicapped and Gifted Children
The Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091

Higher Education
The George Washington University
One Dupont Circle, Suite 630
Washington, D.C. 20036

Information Resources
Stanford University
Center for Research & Development in Teaching
School of Education
Stanford, California 94305

Junior Colleges
University of California
Powell Library, Room 96
405 Hilgard Avenue
Los Angeles, California 90024

Languages and Linguistics
Center for Applied Linguistics
1611 North Kent Street
Arlington, Virginia 22209

Reading and Communication Skills
National Council of Teachers of English
1111 Kenyon Road
Urbana, Illinois 61801

Rural Education and Small Schools
New Mexico State University
Box 3 AP
Las Cruces, New Mexico 88003

Science, Mathematics, and Environmental Education
The Ohio State University
1800 Cannon Drive
400 Lincoln Tower
Columbus, Ohio 43210

Social Studies/Social Science Education
Social Science Education Consortium, Inc.
855 Broadway
Boulder, Colorado 80302

Teacher Education
American Association of Colleges
for Teacher Education
One Dupont Circle, Suite 616
Washington, D.C. 20036

Tests, Measurement, and
Evaluation Educational
Testing Service
Princeton, New Jersey 08540

Urban Education
Teachers College
Columbia University
Box 40, 525 West 120th Street
New York, New York 10027

91

THE GRE APTITUDE TEST: NEW DEVELOPMENTS AND VALIDITY

Moderator: Lyle V. Jones, *University of North Carolina, Chapel Hill*
Robert A. Altman, *Educational Testing Service*
Warren W. Willingham, *Educational Testing Service*

Lyle V. Jones

As chairman of the Research Committee of the Graduate Record Examinations Board, it is my pleasure to welcome you to this session. Our program is designed to allow discussion of selected highlights of the GRE research program, and particularly of those aspects likely to affect the content and the use of the Graduate Record Examinations. The GRE Board sponsors a wide range of research projects pertinent to the selection of graduate students, and to the quality of graduate education. The 16-member Board, 4 of whom represent CGS, is responsible for the research program, the bulk of which is performed by the research staff of Educational Testing Service. In executing its responsibility for the research, the Board acts upon recommendations from its Research Committee.

Since 1974, the GRE research program has been guided by a set of concepts and priorities that were adopted that year. One prominent objective has been that of augmenting the Graduate Record Examinations for the purpose of increasing their validity for predicting the success of graduate students. Preliminary research now has been completed and it seems feasible to shorten the tests of Verbal and Quantitative aptitudes (from 75 to 50 minutes each) and to add a 50-minute test of Analytical aptitude. It is expected that this modified GRE format will be employed first for the GRE to be administered in October 1977. Scores then will be reported not only for the familiar V and Q segments, but also an A score will appear, reflecting performance on analytical items, items considered to be related to one's capacity for reasoning, and perhaps to creative thinking. The shortened V and Q segments are designed so that the standardized V and Q scores may be interpreted as before. No appreciable loss of reliability nor of validity is anticipated for V and Q. Efforts will be made to investigate the validity of the A score as early as possible. It is hoped that the Analytical test will prove useful, perhaps even for predicting student success in areas of graduate study other than traditional academic Ph.D. programs.

A related research effort, in process, is the development of a new machine scoreable test of scientific thinking. It is hoped that findings from this research will be articulated with the tests of analytical aptitude, and may lead to further improvements of the tests to be incorporated in the GRE.

Some recent research also has been directed toward improvements in Advanced tests. Specifically, in a pilot study, it was found that in the field of psychology it is possible and probably useful to report several subscores related to distinct content areas of psychology, rather than a single overall Advanced Psychology score. Whether or not this effort will be implemented in the future depends upon advice from the Advanced Psychology Test committee, and upon

expressed interests in developing subscores for other advanced tests.

For a moment, let me direct your attention to a broader perspective than that of the Graduate Record Examinations. There is ample evidence that appropriately selected aptitude tests when used together with other evidence of academic merit are of some value for predicting success in academic pursuits. The use of GRE scores for predicting success in doctoral study yields significant improvements over predictions based only upon college grades and recommendations. Yet, much more improvement is to be desired. There is little question but that an individual's motivation and commitment remain important determinants of success in his or her chosen field of study. Means for systematic assessment of motivation, however, remain elusive.

One promising research effort is being addressed to these topics—the development of an Inventory of Documented Accomplishments. The assumption underlying this approach is that a good predictor of future accomplishments is a record of past accomplishments. The research objective, then, is to develop a procedure whereby an applicant reports past accomplishments—independent study, research, writing, community service—accomplishments that might be considered by an admissions' committee as being pertinent to an admission decision. The aim is not to develop one or more scores to be reported; this is not to be a "test". Rather, the aim is to establish a standardized format for collecting information that then would be considered relevant to admission to a graduate program.

The key question in assessing the usefulness of the GRE is the question of the tests' validity for predicting success in graduate studies. An on-going activity recently begun is the Cooperative Validity Program, whereby the GRE Board through Educational Testing Service is encouraging the collection of data by academic departments at our various institutions, data that bear upon the validity of the GRE scores. Most of your institutions have received information concerning the Cooperative Validity Program. I urge you to consider participating. Only if we systematically collect criterion data for graduate students is it possible to validate admission procedures. The Cooperative Validity Program promises not only to analyze and report to each institution results from data supplied by that institution, but also to merge and accumulate data from many institutions. In turn, this should contribute both to knowledge about the validity of the present test, field by field, and to further changes in the GRE to enhance validity.

Before concluding, I would be remiss not to mention two additional projects designed to be of service to graduate educators. Both of these projects entail the publication of summary data now available from GRE records but not previously analyzed or published.

During the past two years, all who registered to take the GRE have been asked to reply to a background questionnaire, which seeks information on the age, sex, race, citizenship and first language of each candidate, and also on the size and type of undergraduate institution, year of baccalaureate degree, undergraduate major field, intended graduate major field, and graduate degree objective. A summary of these data for 1975-76, in the form of one-way and two-way tables of results, now is being prepared for distribution to graduate deans. It is planned that a similar summary will be prepared and distributed

for each future year to provide evidence of changing characteristics in the population of persons taking the GRE.

These data are of considerable interest in many respects, providing information about graduate applicants not available from any other source. For example, we learn that black GRE test-takers, who comprise about 6.5 percent of the total, differ from white GRE test-takers on a number of characteristics. As a group, the blacks are older, and more frequently attended church-affiliated undergraduate colleges. Of the blacks, 57 percent report graduating from an undergraduate institution with fewer than 5000 students, compared with 38 percent for whites. More than 40 percent of the blacks report undergraduate majors in the behavioral sciences compared with about 30 percent of the whites. The percentage of blacks completing undergraduate studies in engineering is less than half of that for the whites.

Other equally interesting illustrative findings could be cited—those pertinent to "field-switching" from undergraduate to intended graduate major are of special interest. We hope that this report will reach you within the next two or three months, and that you will find it to be informative.

With knowledge of the intended graduate major field of GRE test-takers, another form of summary data becomes available, namely the distribution of aptitude scores shown separately for each of about 75 intended graduate major fields. This normative data, field by field, will be provided for the first time in the GRE *Guide* for 1977-78, scheduled for publication in the early fall of next year. Scores for an applicant in any one field than may be compared with the distribution of scores for all GRE test-takers in that field during the previous two or three years.

A BRIEF PROGRESS REPORT ON SELECTED GRE RESEARCH ACTIVITIES

Warren W. Willingham

The Graduate Record Examinations Board sponsors a number of research and development activities. My task this morning is to give a brief report on a few that may be of special significance and interest to you. Two years ago several of us connected with the GRE Program reported at the CGS meeting on a new developmental thrust in the GRE Program. Bob Altman has just described the status of that developmental effort, especially the successful shortening of the GRE Aptitude Test and the development of a promising new reasoning module to join the present verbal and quantitative sections. One year ago at the CGS meeting we described another priority—the GRE Board's special concern with the validity of its examinations.

This morning I will report briefly on three important activities that reflect those priorities and that illustrate different types of research and development sponsored by the Board. One activity is the development of tests of scientific thinking. Some combination of such tests might eventually represent an alternate module in the GRE Program. A second activity is the development of a means of inventorying significant accomplishments of undergraduate students

who apply to graduate school. Such an inventory might be a possible supplement to the examination program. A third activity is the Cooperative Validity Studies Program, a major activity concerned with research on validity.

Test of Scientific Thinking

Creativity in scientific problem solving is obviously an important ability for successful work in many graduate programs. There are many different types of creativity. Over the past several years the Board has supported the work of Norman Frederiksen and William Ward on the development of several experimental tests concerned with scientific thinking in behavioral science. These include tests of: formulating hypotheses, evaluating proposals, solving methodological problems, and measuring constructs.

In each of these tests the student is presented with a set of data or a problem situation and asked to make his or her own suggestions concerning appropriate ways of dealing with the problem. All of the current GRE examinations are "convergent" in the sense that the student is asked to identify the correct answer. These experimental tests are "divergent" in the sense that the student must produce answers. Six different scores are produced on the basis of the answers provided by the student. These include: quality of best response, mean quality of all responses, highest quality of response, number of responses, number of unusual responses, and number of responses both unusual and high quality.

Test development research has focused upon three questions. First, can scientific thinking of this sort be measured reliably? The answer to that question appears to be yes, assuming tests of reasonable length in an operational program. Second, do the tests measure the same traits as the current Board examinations? The answer to that question appears to be negative. The "number of unusual responses" seems to be the most promising type of score for these tests. That particular score is correlated about .10 with the current verbal and quantitative GRE scores. A third question is whether these tests are measuring anything interesting? We think the answer is yes, partly because the tests tend to sample activities that behavioral scientists actually do and partly because of encouraging data.

These experimental tests have been tried out in a recent study of regular applicants who were followed into graduate school. The students returned a questionnaire about their activities during their first year of graduate work. The present verbal and quantitative tests tended to predict whether or not the student had matriculated in a department with a high quality-index, and whether he or she received fellowship support. The tests of scientific thinking tended not to be related to those variables. The tests of scientific thinking did tend to predict whether or not the graduate students were involved in activities normally considered desirable; e.g., attending professional meetings, coauthoring publications, independent research activity, assisting in the preparation of a book, designing equipment, etc. Verbal and quantitative aptitude were not significantly related to such activities.

From evidence currently available in this developmental work these tests

definitely seem to measure something useful and different from verbal and quantitative aptitude. They are, however, extremely expensive to score. The next step is to work toward the development of some more practical way to administer such tests to large groups of students. Whether they will continue to measure the same types of abilities with an altered and more practical method of scoring is, of course, a critical issue. There is much work yet to do on these experimental tests, but what evidence we have is promising.

An Inventory of Documented Accomplishments

Many graduate deans and faculty have recognized a need to develop a means whereby students might better represent to the graduate schools what they have accomplished that is significant and relevant to graduate study but not adequately represented in present credentials. The GRE Board is actively examining the possibility of some type of standard inventory. The rationale is as follows. We know that verbal and quantitative aptitude have important but limited bearing on many types of success as a graduate student. These abilities may be over-emphasized, especially considering the fact that graduate work requires many types of talent. There is some evidence that educationally disadvantaged groups appear less disadvantaged with respect to significant accomplishments in undergraduate school than on more conventional measures like test scores and grades. Furthermore, there is much evidence indicating that prior accomplishment best predicts future significant accomplishment. Finally, we know that students often feel that tests do not allow them to describe their most important strengths.

An inventory whereby students could indicate in a standard framework what their significant out-of-class accomplishments have been during their undergraduate education would help to focus proper attention on such accomplishments and make it easier for graduate facilities to give appropriate weight to important indicators of success as a graduate student. The effect we suspect would be greater equity to students, a useful broadening of the definition of talent in American society, and the selection of more successful students. This latter point derives especially from the fact that accomplishments are commonly assumed to be the most direct and useful measure of student commitment and motivation.

Graduate schools presently solicit and consider such accomplishments of candidates but many have observed that this is typically not a very systematic process. Careful consideration of diverse accomplishments of large numbers of applicants is not easily managed by graduate selection committees, nor do present procedures always give adequate weight to important strengths students have to offer. The GRE Research Committee has felt that there is need for some mechanism to give structure and focus to the current practice so that important talent is not overlooked simply because other candidate attributes may be more prominently displayed. Consequently, an exploratory project was initiated under the direction of Leonard Baird. The GRE Research Committee also recognizes many problems in any such effort to develop a more standard procedure. There are a variety of critical issues in the design of a useful inven-

tory. At the present stage of this work the Committee is especially concerned with such issues as the following:

—What types of accomplishments are relevant?
—Should their description be open-ended or objective?
—How can "quality" of accomplishments be indicated?
—How should accomplishments be verified?
—What is the best way to administer and transmit such information?

Thus far we have gathered a good deal of prototype material useful for developing such an inventory. We hope soon to examine systematically the issues outlined above and seek advice from students, faculty, and graduate deans. It is undoubtedly true that any effective inventory will require work on the part of students and faculty. It is our hope that it will not require more work than is presently undertaken but work that is better directed toward serving the mutual interests and needs of students and faculty in the process of graduate admissions.

Cooperative Validity Studies Project

At this meeting last year we spoke of several reasons why the validity of tests is currently an especially important issue. As undergraduate education has become more egalitarian, selection to graduate and professional school has understandably gained more public attention. Affirmative action has also focused attention upon the selection process; legal action increasingly underscores the need to justify selection policies and decisions. Furthermore, confidence in traditional measures like undergraduate grades and personal recommendations has tended to decline in recent years because of problems of grade inflation and privacy issues. Finally, it is increasingly recognized that professional standards of test use demand that users (schools and departments) examine the validity of measures they use in the selection of students.

Because of these considerations the GRE Board recognized a need to encourage local validity studies and to provide some central support for such work. For this purpose the Cooperative Validity Studies Project was initiated. As one phase of that project, all CGS deans were sent a brief questionnaire concerning validity studies on their campus. Of 244 deans who responded one half expressed interest in carrying out a study and 40 institutions are actually now taking their first steps to participate in the cooperative program suggested.

One significant aspect of this survey was the fact that only some ten percent of the graduate deans reported any validity study carried out on their campus since 1970. In addition, it appears that many locally initiated validity studies do not meet the usual requirements for such work. The findings of this survey seem to indicate that there is increasing interest in carrying out validity studies and recognition of the importance of such work, but the local state of the art is not well developed. These results support the GRE Board's judgment that a cooperative program for validity studies was needed.

As minimum requirements for participation in the Cooperative Validity Studies Project, the institution must provide:

- Roster of all students entering in 1974 and 1975 (at least 25 for each group)
- Coded progress of each student at beginning of second year following admission.
- GRE Aptitude and/or Advanced Test scores (other predictors optional)
- At least one common measure of performance for all students; e.g., graduate grade average, end-of-year examination, faculty ratings.

On the basis of this information, the following results are reported by ETS:

I. Report to each institution on:
   - Relationship of GRE scores and other predictors to each performance measure
   - Relationship of GRE scores and other predictors to persistence
   - Descriptive statistics on all groups

II. Summary report of all studies.

The three projects illustrate important ways in which the Graduate Record Examinations Board attempts to keep its programs responsive to the needs of graduate institutions. It is important to recognize, however, that the Board serves institutions by collaborating with them, both with respect to identifying new directions and implementing new activities. These three activities briefly described here represent widely acknowledged needs. Bringing them successfully to the point of assisting students and faculty in individual departments will require the continued interest of institutions and their willingness to participate in joint work with the Board. In recent years that has been a fruitful relationship, in the next few years we hope it will be even more so.

CREATIVITY IN GRADUATE EDUCATION

Moderator: Anne Taylor, *University of New Mexico*
Wimberly C. Royster, *University of Kentucky*
Sam C. Webb, *Georgia Institute of Technology*

Anne Taylor*

The language in which we are about to state a certain problem that concerns us all as graduate deans is blunt and even vulgar. It is not the language we like to hear used in university councils but rather that of the marketplace, but there may be an advantage in beginning with a blunt way, even a vulgarian's way, of putting the problem: too many graduate programs today are producing an unsellable product. Hundreds of Ph.D.s in English, hundreds in history and in the modern languages, in psychology, in education, and even in physics and the applied sciences, however, expensively and elegantly educated, are in the market for jobs (we should perhaps say "on the market"), and nothing like enough jobs seem to exist.

What amounts to a second—and sadly ironic—energy crisis appears to be upon us, as the energy of so many talented people is left unused and even untapped by the nation—owing, apparently, at least in part, to a system of education that has more inadvertently than not hardened through tradition the isolation of one discipline from another, and that of the university as a whole from society. Today, institutions of higher education cannot, or at least have not yet found a way to infuse their graduating quanta of enlightened human energy into work areas that might help to solve society's increasingly complex problems.

We in universities fear—and for good reason—the application of lowbrow utilitarian and commercial tests for the validity of education, perhaps especially at the graduate level. Yet our resistance to commercial and utilitarian measures is diffuse and inarticulate, and more often than not our own reactions in times of crisis are themselves modelled on industrial and commercial responses. That is, we deal with the problem of overproduction of graduate degrees by the rather primitive expedients of retrenchment; the announcement of moratoriums or reduced admissions quota in some graduate programs and the wholesale closing out of others. In short, as it were, a confused version of a factory lockout.

The lockout is, of course, one kind of solution, and it works in one kind of way. But most of us feel discontent with this solution, and even uneasy with it. Most of us like the sound at least, of creativity in graduate education and would like to see such a slogan filled with some useful substance.

---

*The authors of the paper are Anne Taylor and Jane Kopp of the University of New Mexico.

To creativity in graduate education, there are admittedly certain initial barriers of tremendous dimensions. Creativity in anything depends on a radical restructuring of the elements of a given problem. Creativity by definition means finding and trying solutions that are unconventional. While efforts to restructure problems and attempt new solutions notoriously meets with resistance in any context, this is a mode of behavior that may be especially difficult to introduce into an academic situation. Academic institutions, byzantine in structure and intrinsically committed to tradition and even to ceremony, are perhaps extraordinarily conservative by nature; in addition, as well we all know, built-in constraints such as tenure clauses always limit at any given time what can be done. The obstacles are indeed numerous and discouraging. The mass which they present in the form of an immovable object can perhaps only meet its match in the force of urgency in the crisis we seem to face.

We have no instant solutions to offer. What we do want to argue for today is the need for the graduate school and the graduate dean to assume responsibility in the university—in the face of the inertia, resistance, and even criticism and ridicule that are perhaps inevitable—for fostering the atmosphere necessary for creative thinking. This means fostering an atmosphere in which new ideas are systematically and substantially encouraged, and in which the kind of exchange and introduction of novel elements that underlies all creative innovation is stimulated and facilitated.

Most of us like to believe that we do this already; but a heightened sense of what is at stake may be obtained by restating and restructuring the problem that apparently exists, and this we would like to try to do briefly for a few moments, after which we would like to propose two or three simple concrete examples of initiatives that a graduate school may be able to take in response.

The gross problem is that we live in strange times. Though in the United States we seem at least temporarily to have solved our population problems, other nations unsolved population problems are even now at our door. Latin America and Mexico are already having an impact on our country as the influx of illegal aliens approaches uncontrollable proportions. While the Rolls-Royce Corporation is pleased to report that it sold one-thousand new cars last year in the forty to sixty-five-thousand and above bracket, we still have abject poverty in America, and there is cause for serious concern about our economic future. Pollution and the deterioration of the environment, both natural and man-made, seem to proceed inexorably despite abundant evidence that the consequences may very injuriously affect us all in less than twenty years. Technology dominates our lives and continues to stimulate our artificial appetite for material things. Even though some of us may have transcended desire for a Cadillac or six different sets of wine glasses, emerging peoples, both in the United States and outside its boundaries, apparently will have to go through what George Lockland in his book *Grow or Die* calls the accretive stage of consumer development.

It is a truism that money is worthless in itself, amounting in modern times especially only to soiled paper and not very precious metals. People want money, and they devastate the earth and one another to obtain it, not for itself but for what it can buy—a sense of worth, identity and self-determination; sensory pleasures; avenues by which to escape boredom. Yet even the lowbrow maga-

zines are full of the news that the richest nations have the highest rates of suicide, neurosis and simple discontent with living—their richest citizens hardly being absent from the lists. As many of us know, much of destructive human consuming behavior takes place at a very low level of aesthetic decision making, perhaps because the creative aesthetic development of all of us has been neglected or shunted aside. Recent research on split brain theory holds that school systems may—by over-emphasizing cognitive learning—have neglected the right hemisphere of the brain and developed, if you will, the rational side of man to the neglect of his more affective non-rational side. It is no idle speculation that such internal deprivation may manifest itself in the craving for outside stimuli in the form of the craving for drugs, alcohol and overt violence now being expressed all over the world.

It is against this kind of backdrop, then, that the university graduate school in actuality functions. It is unconventional, of course, to view the graduate school against such a deplorable and admittedly lurid backdrop. It is even perhaps "infra dig"—but not one detail of what has been mentioned can possibly strike any of us as unfamiliar or disputable. And when—unconventionally—the graduate school is viewed in its actual setting in reality, it must be quite apparent that there is some sort of dreadful discrepancy between what is asked of its highly educated people in the way of answers by society and what is being received. We stress the word "received," for in fact many of society's problems are being addressed in the university; but the news of this is somehow not transmitted, or is distorted in transmission. Equally there is a discrepancy between what graduate students are trained to do and what they hope to do, and what in fact they connect with in the way of opportunity.

If we have, then, an unsellable product on the one hand—an M.A. or Ph.D. recipient who finds few places to apply his or her energies so as to be a valuable, contributing human being—and a society with many sore and unattended needs on the other, it would seem inescapable that a new role is emerging for the graduate school dean—that of intellectual broker and facilitator. Program quality control and the maintenance of faculty excellence, two traditional areas of responsibility for the graduate dean are important; but we believe that it may behoove deans to search out and cultivate new skills, to explore aggressively new ways of bridging disciplines and of communicating with major sectors of society outside the university. It seems apparent that the interface between the university and society does not have currently the quality of permeability that it should. It is too hard, too impenetrable—finally, too metallic. The university may need a protective membrane between itself and society, but if such a barrier does need to exist, surely it should have an organic nature like that of a living cell which has a healthy and regular exchange with its environment.

Less fancifully, university graduate programs can almost certainly benefit if some regular and dependable means can be provided whereby news can be both given to and received from the outside world. We suggest that graduate schools take under consideration the idea of a periodic publication addressed to appropriate local recipients—business, industry, professional organizations, and legislatures—reporting news of current university research in progress, and even, yes, even presenting abstracts of each periodical harvest of theses and dissertations. In turn, the graduate dean might invite from the same sources sugges-

tions and requests for research projects which could be circulated within the university as they are received, via an interal publication.

Moving back, even farther, to the admissions process, graduate deans may want to concern themselves with what is known about tests to assess new kinds of intellectual aptitude, tests that can identify students with, for example, a high order of mental flexibility and with high tolerance for ambiguity—traits that have shown to be characteristic of highly creative people. In fact, work on such instruments has been ongoing for some time, but they are only rarely put to use. Discovery and creativity involve mental aptitudes that diverge sharply from those produced by traditional modes of replicative education. According to the emerging theory of what is possible through the use of mutualistic processes, an individual or a group is able to create effectively new data by putting old pieces of information together in new configurations.

New academic departments are not necessarily in order. Rather, what does seem called for is imagination in providing incentives and opportunities for well-trained individuals to work together in flexible structures transcending departmental boundaries, on problems requiring the insight of more than one discipline. Graduate students who have had experience in such programs carry away an adaptive, problem-solving orientation and a respect for the contributions that several disciplines can make to solving difficult, real problems. Student architects, for example, can work with educators to improve sterile educational environments. Medical schools can draw on the accumulated knowledge of schools of education to develop curriculum simulation models for highly technical learning. Doctoral students on land-use planning can be rewarded with academic credit for work done in the field, as for example in working with Indian reservation sites or in the study of ecosystems in relation to nuclear consumption and the disposal of industrial wastes. Music educators can make contact with cadres of musicians and make their entry into the schools possible. Why not jazz in the schools? In the case of English departments it can mean interesting graduate students in the very real challenges of practical writing occupations or in reconsidering what is really at stake in the much decried problem of literacy and the deterioration of the language itself as it is generally used in society.

This raises, finally, the question of what may be the most difficult role of leadership that graduate deans today may need to assume, that of altering the self-image that professional academics, and consequently graduate students, are inclined to cherish, namely, that of a specially privileged class engaged in esoteric pursuits that can hardly be communicated to society at large and that need not be justified to it, even while society is expected to foot the bill. This year's September issue of *Harper's* magazine carried a cover feature in which university English departments, in particular, were singled out for such censure. We do not altogether agree with the point of view expressed, nor deny the possible validity of what may seem esoteric or not immediately "useful" research. Our point, again, is rather that the university needs constantly to look at its relation to society and needs to keep healthy lines of communication open. When society badly needs certain skills that highly trained graduate students possess, and when graduate students on the other hand learn an attitude of disdain toward the use of those skills except in a very limited number of ways,

then an unhealthy situation is clearly in the making, one that is inherently self-defeating for graduate education itself. Paradoxically, the graduate dean may be the very one whose responsibility it is to insist upon the challenge and the worth of non-academic occupations.

Funds, federal support and budget line items are important and essential to excellent graduate programs, but not necessary to this kind of thinking and doing at the graduate school level. What we are suggesting is a new role for graduate schools. Quality control of admissions and programs, maintenance of faculty excellence are important. But it is possible for graduate schools to do much more. It is possible for them to become centers from which futuristic bridges can be built to move graduate students from traditional subject matter molds into areas of concentration and effort that may as yet be undefined. It is the unknown, not the known that holds real promise.

Wimberly C. Royster

There are several directions upon which one can focus in discussing creativity in graduate education. We have heard some of them earlier in the program. My remarks shall focus largely upon the factors which influence instruction and research.

There are many different views as to what is creativity, but whatever view is held, all of us would agree that the source of creativity is the mind. The ability to accumulate experiences, to reason, and the gift of imagination are the traits which make creativeness possible and which give birth to new ideas. A problem of long standing and upon which much research has been conducted is how these new ideas have their origin. One view is that creativity is a gift and that new ideas arise almost spontaneously in the mind, such as in the story, many times repeated, of Henri Poincaré, of how he, contrary to custom, drank some black coffee and could not sleep. He said "ideas arose in crowds, I felt them collide until pairs interlocked so to speak, making a stable combination." He discovered from this the existence of certain very important mathematical functions. Later when he was going on a geological excursion with no thoughts of mathematics in his head, as he put his foot on the step of an omnibus, the idea flashed in his mind that the transformations he had used were the same as those of non-Euclidean geometry. This latter fact lead to many profound results. Relative few people can be classified as creative in this sense. A second view is that the method by which new ideas arise is deductive, which consists of the accumulation of a large array of facts and ideas and searching for a previously unknown relationship among them. A third view, as it has appeared more recently to be held by some people, is that creativity is synonymous with novelty or the filling of leisure time, so that the creative included almost everyone. Let us focus somewhere in between, maybe slightly to the left of center and simultaneously use imaginativeness, for to create is to produce through imaginative skills. Let us not dwell on the definition of creativity, but let our concern be the cultivation of imaginativeness in all parts of the graduate education enterprise.

A. N. Whitehead once wrote:

> The justification for a university is that it preserves the connection between knowledge and the zest of life, by uniting the young and the old in the imaginative consideration of learning. The university imparts information, but it imparts it imaginatively. At least, this is the function which it should perform for society. A university which fails in this respect has no reason for existence. This atmosphere of excitement, arising from imaginative consideration transforms knowledge. A fact is no longer a bare fact: it is invested with all its possibilities. . . . Imagination is not to be divorced from the facts: it is a way of illuminating the facts.

When this was written in 1927, "uniting the young and the old" was the correct phraseology, whereas today it may not be. But, the important concept is the "imaginative consideration of learning." Today graduate school students come from all age groups; however, they can be partitioned into essentially two groups: those who are recent graduates of a baccalaureate program, and those who have bachelor's degrees and are returning for study after some period of practical experience. In many programs the recent graduates comprise the major (if not all) of the graduate student body. In some programs there is a mxiture of both types. In some disciplines creativity is with or for the young, but, in general, imaginative acquisition of knowledge need not be relegated to the young. Age should be no barrier.

There is not time to go into a detailed discussion on creativity in the various graduate programs or how one identifies creativity in graduate education. As was stated earlier, the object of these remarks is to indicate the need for imaginativeness in graduate programs, to raise questions if present day practices in graduate education are conducive to creativity, and make some suggestions as to what we as graduate deans can do or should do to encourage it.

We should ask first what goals do our graduate schools seek to serve. These goals are stated often as (1) to provide individuals with advanced education that is essential to the pursuit of specific careers, (2) production of new knowledge, (3) the preservation and transmission of knowledge, and (4) the improvement of the quality of life in our society. Are we accomplishing these goals? Are we training our students for jobs, a training which may be obsolete in a few years (or may be obsolete by the time the student receives the degree), or are we encouraging the imaginative acquisition of knowledge and the consideration of the various general principles underlying a future career?

It is saying the obvious that technological and social change have accelerated at a remarkable rate. Technological change may be the most evident. It is vividly apparent when one notes that the time lag between discovery and application has decreased exponentially in the last century and a half. For example, the time lag for the electric motor was 65 years; the principle of radio broadcasting, 35 years; radar, 5 years; the transistor, 3 years; and in one lifetime, the first flight of the Kitty Hawk to the landing of men on the moon. Of the social sciences, Arthur Schlessinger, Jr. has stated:

> The age of acceleration [of change] was characterized by the obsolescence or collapse of old truths and the use of new ones; it was charcaterized too by warfare between tradition and novelty; it involved a steadily more comprehensive criticism of the past by the future. People began to discover their

assumptions when other ways of putting things became available and even attractive. And the faster the rate of change, the greater the need for new conceptions and the sharper the competition among diverging ideas.

When one considers, in addition to the acceleration of change, the rate at which knowledge in all fields is expanding and the need for the development and application for new knowledge, then one begins to realize the task which is before those who are responsible for graduate education. More must be done to prepare a new generation of graduate students for the uncertain future.

If the graduate schools are going to meet the challenge, they must encourage the development of imaginative methods of putting ideas together and methods of approach to problem solving, or putting it another way, they must prepare students to cope with new ideas, new situations, and new problems. There is a tendency in too many graduate programs to train for jobs and to credentialize. Should what can be learned as an apprentice be part of graduate instruction?

Let us look at some of the elements in graduate programs which influence or affect the degree of imaginativeness in them. The dominant ones are the curriculum, the students, the faculty, and the administrators. A closer look at each of these may reveal some of the problems currently being experienced in graduate education.

1. *Curriculum:* Many of our graduate programs are structured in a manner which discourages creativity. Creativity and learning require free time, time for reflecting on new ideas and concepts-building and tearing them down. Many students take 12-15 or more credit hours per semester, sometimes in addition to other duties, some would take more, if permission were granted. When queried about it, the reply is often "my advisor recommended it in order that I can finish my degree in two semesters" or "I took $\times$ hours, $\times \leq 12$, last term and made A's with no sweat." Under such conditions the 30-credit hour, 36-credit hour, and 48-credit hour master's programs degenerate into no more than a continuation of the bachelor's degree with a similar philosophy.

In programs which require the amassment of a large number of credit hours, when does a student have time to do more than the bare minimum requirements? One could ask, where does and how should creativity fit into master's programs? One suggestion could be that a thesis be required. Some faculty and students see this requirement as no more than another hurdle to jump, others do not. In any case, there is a place for creativity, for experimenting with new ideas, and for the skills to analyze results. The curriculum should be structured to insure that each program provides for these, for regardless of the discipline or field, there are new problems to be solved and there is room for new ideas. The curriculum should provide time for the student to exercise curiosity, to seek understanding and develop intellectual insights, and to search for basic knowledge which is required to generate new ideas. If the curriculum does not, the program becomes stagnant and is not providing the requisites for advances of knowledge in the field.

Doctoral programs with their attendant research component are developed on the premise that creativity is the most important qualification for completion of the degree. Yet, are the courses, seminars, qualifying examinations, and other evaluative methods for each of our doctoral programs structured to detect the

rudiments of ingenuity and creativity? Also, what about the breadth of training of doctoral students? Are we permitting them to specialize to the extent that there can be no exchange of ideas outside the specialty? In order to pursue the research for the doctorate in most fields, a student must select a specialty, yet training is necessary in neighboring fields if the stated goals of graduate education are to be accomplished.

2. *Students:* In a recent survey conducted by Katz and Hartnett which was reviewed in the October 18, 1976, issue of *The Chronicle of Higher Education,* it was reported that:

> Graduate students too often find their studies intellectually disappointing. . . . Many students "find their lives crammed, . . . their energies beset by relentless requirements and even busywork, all of which make graduate school at times more resemble a military drill rather than the exercise of man's most intellectual and imaginative capacities," . . .
>
> "Students hope to join a community of scholars. Instead, they find themselves being pushed into relative intellectual isolation. . . ."
>
> "Students desire to work with professors who will guide them and reflect on their work. Instead, they find access to professors limited. . . ."
>
> "The nature of the graduate experience [is becoming] increasingly impersonal." . . . [There is a] "loss of theoretical breadth, community of inquiry and civility."

We may or may not agree with these criticisms by graduate students. Obviously, they do not apply to all programs. Whatever the view, though, they depict some serious problems in graduate education which should be addressed by graduate school administrators, directors of graduate programs, and the faculty.

3. *Faculty:* One of the most important factors in any intellectual enterprise in graduate education is the faculty. The interaction between faculty and students is a necessary (though not sufficient) ingredient in the development of creative activity.

It has been assumed for centuries that the university is a community of scholars who not only interact with themselves but with their students. There are many signs today that this is in general no longer true. As is noted above, graduate students indicate faculty isolate themselves, not only from students but from one another. The pressures of gaining tenure and of advancement in rank have pushed many of the young faculty out of the corriders and coffee rooms where interchange of ideas with students took place back to the corners of their offices providing only limited contact with students. Too many of the senior faculty are burdened with committee work, time effort reports, and other paper work, and other administrative duties. In order to keep abreast in their field, they find it necessary to withdraw to isolation.

Creativity in graduate programs requires imaginative teachers. Creative teaching as well as creative research is exhausting. Time must be provided for study, planning, reflection upon new ideas, and interaction with students. Unfortunately, provision of time for these purposes does not always prove to be fruitful. However, if we want imaginative teachers we must encourage them to

do research. Imaginative research faculty should be encouraged to share ideas and interact with graduate students.

4. *Administration:* What effect can administrators have upon creativity in graduate programs? In most institutions the graduate curriculum and courses require the approval of the graduate school, thus providing a chance to influence the curriculum. In some institutions the graduate dean advises on promotions and is involved in the approval of graduate faculty. In some instances the dean is involved in the evaluation of faculty. Each of these responsibilities provides the dean with an opportunity to exert influence on the quality of graduate programs and to encourage imaginativeness in the program.

The graduate school is a natural place for the development of interdisciplinary and interdepartmental graduate programs and problem oriented research. These programs provide a variety of opportunities for imaginativeness and the development of new knowledge. There is generally more flexibility in the graduate school organization than in the departmental and collegial structures. This permits faculty and students to associate formally with others of similar interests in other parts of the campus without totally divorcing themselves from the staid and sometimes stagnant traditional collegial structure. However, the dean must provide financial support for leadership and direction of the program in order that the program does not become a disconnected set of faculty and students of diverse interests with poverty level support. In general, the faculty reward system of the department and the college works against such programs. The graduate dean, by working the appropriate administrative and faculty governance channels, may be able to alter this situation wherever it exists.

An internal and external evaluation of graduate programs provides the dean with information about the curriculum, students, and faculty. It provides information concerning the teaching load of the faculty, research effort of the faculty, the course load of graduate students, and the general effectiveness of the program. In some programs where heavier teaching loads are required, it could be recommended that more flexibility be provided for alternate periods of teaching and research; that is, a professor could be permitted to carry a heavier teaching load one semester so that more time would be available for research another semester.

Other ways in which administrators can encourage creativity include support of graduate student research programs, faculty development fellowships, program seminars and colloquia, and interdepartmental faculty and student seminars. It might be worthwhile to conduct seminars on creativity with representatives from various fields as participants. Very likely many of you have ideas, some of which have been implemented in your own graduate programs. The ensuing discussion of the topic will give us a chance to share these ideas.

Sam C. Webb

I recently chanced upon an article written by a former and distinguished graduate dean under the title "Creativity and the Graduate School." After noting the usual criticisms of the graduate school "as an effective stifler of creativity," the writer asserted that the graduate school is "an institutional

invention to promote organized creativity." In the remainder of the article there followed an apology for the kind of creativity that is found in graduate schools. The author suggested that the contribution of the graduate school lies, not in the developing or nurturing the creative giants of our civilization, but in "spreading the possibility and in the end (and on the average) the fact of creativity to many more people than hitherto." Without telling how, he noted that the graduate school makes the B- into B and so on; and in the course of making such improvement, the faculty and students involved revise the work of the genius and makes his occurrence in a way less likely—and perhaps less necessary. For at the graduate level, said the writer, the whole enterprise is geared to those people who do all the replications, the negative experiments, the false trials, and so on, and who pave the way to another breakthrough even as they validate the last one. Indeed, said he, without this type activity on the part of these people, most of us would not be here, for most of us *are* such people.

I will leave it to you to decide whether this description made ten years ago applies to graduate schools of today as well. In large measure, I suspect it is still valid. But being somewhat aware of developments over the past several years that have led to an increased understanding of the nature of creativity and how it can be developed, I believe that graduate schools can become more effective than they presently are in the development and use of creative talent.

As one recent writer says, "we produce people who are more confined in their thinking than their capabilities would allow."

We often hear it said that research is the heart of the graduate program, and more often than not we think of creativity as it contributes to and enriches research, as indeed it ought to do; but we tend not to think of creativity so much in relation to other aspects of graduate education—which tendency, I believe, needs our attention and correction.

In the spirit of this belief, I have tried to think of some things that could be done to place a greater emphasis on creativity in graduate education with special emphasis on developing more creative students—that is, students who will be more creative in their thinking, learning, and teaching, as well as in research.

However, it seems to me one cannot make many cogent suggestions in this regard without first having some conception of the processes by which and the circumstances within which creative activities emerge or take place. While there are several models available that presume to describe the nature and structure of creativity and "how it works," I favor a dynamic model which describes the mind as operating simultaneously at three levels—at a conscious level, at a preconscious level, and at an unconscious level. For creative activity one of these, the preconscious, is considered as being essential. It represents that portion of the mind which is constantly at work without our conscious awareness and which is continuously reshuffling, rearranging, analyzing, reorganizing and placing into various patterns of juxtaposition both the ideas and emotional elements of mind. A creative thought or act occurs when these new patterns rise in the awareness of the conscious mind. Thus creativity depends on the free flowing of the preconscious. However, not all ideas that emerge from the preconscious are necessarily creative, since they may contain aspects that do not conform to the constraints of reality, which are moderated through the con-

scious mind. Thus within this model flexibility and creativity are judged to be at a maximum when these two elements of mind—the preconscious and the conscious—are working together without inhibition from unconscious processes.

In terms of this model, then, the way to maximize the development of creativity in students, and faculty for that matter, is to devise an environment in which a free flowing preconscious mind working together with the conscious mind can be promoted to the fullest extent. It is interesting to note somewhat parenthetically that according to this model students do not have to be taught to "think." The capacity for so doing is inherent in the human mind and will occur if it is not interfered with by unconscious forces and educational practices.

Now if you will accept this model for describing how and under what conditions the creative mind operates optimally, it doesn't take much looking to become aware that there are many elements in the graduate school environment that will impede the development of creativity in students.

Note first that the graduate school is operated to serve a variety of functions. Among these is the development of innovative students and research to be sure, but also there are the expectations that it teach or transmit knowledge and produce teachers, and practitioners as well. Standards of accrediting agencies strongly influence, if they do not actually dictate, what shall be taught. Students are expected to master large bodies of fact and theory and to become competent in skills of technique and method, all within a time frame which places great emphasis on the mental abilities of memory and recall and allows little, if any, time for the synthesizing and generating of new perspectives that arise from preconscious activities.

And to all of this add the press for conformity generated through the various rules and regulations created and administered by the graduate school and the departments in the name of developing and maintaining high academic standards.

In addition, there are numerous factors primarily at the departmental level that operate as anchors which impede or block flexibility of thought and action. Examples include commitments on the part of faculty and students to previously learned ideas or beliefs, and emotional attachments to persons who have developed ideas which their students uphold. Also, here may be included the expectations of some professors who require their assistants to perform their research on assigned topics, or to fill in the gaps of their—the professors'—ongoing research programs, or to follow their pet research procedures.

And, finally there are personal characteristics of both faculty and students that impede the development of creative talents. For example, some faculty insist that students do only as they are told. Some students are only job and technique oriented and do not want to be involved in innovative activities. Some do not have the abilities or aptitudes to do so. Others are overly dependent and will submit to any demand or suggestion, while others are so overwhelmed with unconscious conflicts that they cannot get control of whatever creative potential they may have.

While the above remarks clearly show that numerous forces are at work to inhibit the development of originality and creative talent within students, they should not be taken to mean all is hopeless and that the possibility of improvement is negligible. For while time does not permit a recounting of the details,

there are evidences to suggest that graduate schools can indeed become more effective in developing the creative talents of students.

By way of illustration I have listed in what follows examples of things that can be done at the graduate school level, at the department level, and by individual professors to give students a greater opportunity to develop their creative talents.

Of crucial importance is the attitude that the graduate school takes toward creative talent and the desirability for developing it in students. In this respect the graduate school and its administration should clearly indicate strong support for creativity as a quality to be nurtured and developed in all aspects of graduate education—in the classroom, the laboratory, and the studio, as well as in research. Further the graduate school needs to signify its intention to reward the development of this talent and how. It needs to create an image of the graduate school as a unit of the university dedicated to and supportive of creative activity. It needs to declare emphatically that some kind of creative effort is expected of every faculty member and every student. It needs to suggest that the institution and the faculty and students stand or fall together—which is to say the self interests of these people and the interests of the university are tied together. It needs to get the faculty to see that while they are expected to do innovative research, the most important product the university turns out is creative students. It needs to construct its administrative arrangements so as to allow each field or department the amount of freedom that is optimal for the field (at the same time maintaining an appropriate feedback system as required for monitoring purposes.) It needs to provide a communication system that will keep the several units of the university informed about the innovative work of students and faculty that is going on. It needs to organize its committee and other administrative activities in ways that will interfere minimally with the creative work of the faculty, *i.e.*, use the creative faculty for creative work, not for routine committee work.

The departments need to assist in publicizing and supporting the policies and attitudes toward the development of creativity developed by the graduate school. They need to acquaint their faculty members with the "signs" that characterize creative students so that they can identify such students. They need to encourage faculty to work with such students. They need to inform faculty members about various procedures and techniques that can be used for developing creativity in students and to encourage their use. They need to use the creative faculty and students as role models. They need to use creative faculty for creative efforts, not for routine departmental tasks and chores (commensurate with some reasonable plan for the distribution of departmental chores). They need to reduce the pressure on the faculty to publish, so they can do more to develop students—that is, give greater reward than now for time spent in developing students.

The individual faculty members should work with students to develop their creative talents, provide exposure to diverse orientations, emphasize self critical evaluation of existing knowledge, have students make their own interpretation of facts and development of models without reference to the literature, encourage spontaneous interests, and reward students who show creative behavior.

In addition to these, there are doubtless many other things that can be done to foster creativity. Hopefully, many of you can specify what they are in the impending discussion period.

Business Meeting

Thursday, December 9, 1976, 2:30 p.m.-4:30 p.m.

CHAIRMAN'S ADDRESS

Sanford S. Elberg

President Page, fellow deans, honored guests and friends:

At this time your Chairman is scheduled to distill into a few minutes the accretion of some years of background experience as a member of the Executive Committee Chairman-Elect and Chairman, as well as the experiences of some number of years as a graduate dean. I have chosen to call to your attention a few items which delineate the graduate dean's present condition. Some of these (I hope), will suggest new directions, since there is no need here to recapitulate the discussions of the past.

Most of us, it is safe to assume, have entered upon a period in which new additions to the faculty are very difficult to command. In consequence of this, both past errors of selection and unexpected losses in individual drive and accomplishment (Clark Kerr referred to this problem as the "climacteric") may no longer be corrected by bringing in fresh faculty talent to pick up the slack. If it is not handled quite specifically elsewhere, a new role for the graduate dean's office concerns itself with "career guidance" of faculty just as our offices are involved with students' career guidance. Whatever *primary* role the institution perceives for itself in higher education, the capacity of the faculty to retain a lively and aggressive activity in this primary role needs to be refreshed occasionally. While the other administrative offices attend to hiring and promotions as well as terminations, delays and dismissals, there seems to be little opportunity, apart from the principle of sabbatical leave, for some faculty members to recycle, redirect, or learn new sub-fields of the subject in the face of flagging physical and mental energies.

Since the problems created by such faculty in their mid-fifties or even earlier may be quite severe on the graduate student sector of a unit, we are inevitably interested in the case and hopefully we shall be part of its solution when the phenomenon is more widely recognized.

The problem for the faculty member "damping down" into a narrow line of effort, be it teaching or research, is an important problem and perhaps something can be done about it under our creative auspices. A constructive solution will require great intellectual effort and physical energy by the individual, in the face of certain sociological problems in this micro-community. In any event, it is an area that needs constructive suggestions beyond the simpler solution of accelerating a sabbatical leave, and would undoubtedly strengthen the reasons for continuation of the concept of tenure. In *some* cases it may be desirable to place the major teaching load of the unit on older faculty, thereby allowing the younger members to focus their attention on enhancing their strengths, in research or teaching. It remains for the institution to concern itself with personnel matters of a kind that have generally been ignored in the

past and which may no longer lend themselves to benign neglect. Indeed there may develop here a potentially felicitous relationship between the graduate dean and the extension arm of the institution in fashioning a kind of "faculty—continuing- education". Even *we* might well be appropriate human subjects with "informed consents" come that fateful day.

I do acknowledge the variety of institutions in our association and the consequent variety of problems that may have long been successfully attacked; solutions of which I am ignorant and ask the indulgence of representatives of such institutions to bear with me.

A second major problem which may need a thorough reexamination in some institutions is the method by which resources for graduate student education are allocated, especially in laboratory sciences where supplies and equipment are required by students often in *both* the doctoral and master's degree programs. These expenses have been and are chiefly borne by faculty members out of research grants, or by departments out of private gifts to the department, and in the more fortunate cases, by some endowment restricted to a particular field. But clearly the income for such activities is exceeded by the costs; greater and greater demands on the extramural research funds have become commonplace. Each doctoral institution, especially, realized long ago that the departments were by their own actions managing to cope with this support question but I suspect it's a major funding problem today on top of the utilities costs. It is doubtful that the graduate dean's office should continue to be removed from participation in the instructional and research budget process, certainly at the dissertation level, and it may be timely to seek an assignment of instructional operating funds for allocation to the most advanced doctoral and master's stages of graduate student activities in a unit.

If F.M. Cornforth's predictions are correct, we will meet the following types of argument: "the present measure would block the way for a far more sweeping reform", such a reform having been favored fifty years ago by few extremists and which is now impracticable and not desired by any one. Another argument will be that "the machinery for effecting the proposed object already exists and is urged whenever the existing machinery has never worked and no chance exists that it ever will."

In actual fact what is suggested here is that a major reorganization of some graduate offices be effected in the manner of allocating the institution's resources, to the end that those graduate offices that are actively involved with the departmental problems of graduate education have resources to allocate to units managing major degree programs.

A third knotty problem which increasingly affects our condition is failure to educate new, and to remind older, faculty members of the "common law", as well as the printed regulations, of the graduate office. Let me explain this vacuous sounding statement. In the course of graduate program reviews, one occasionally encounters a situation in which some faculty members are in difficulty with the dean because of an apparent determined action to ignore procedures which are as old as graduate work itself, and which have proven themselves over decades of experience to be valuable in minimizing institutional anarchy. Some measure of relief is available to both parties when it is realized that the actions are being taken in ignorance of the reasons for the

procedures and a kind of orientation procedure is usually very successful in such cases, conducted by the graduate deans and their principal office staff. But the real problems arise when the dean discovers that the subversion of rules and policies, followed without difficulty in all other units, is due to a philosophy in the unit under review that the institution is a "repressive body" and its rules and regulations are therefore to be ignored. An inquiry about these failures is answered by arguments that are addressed to prejudice and political motives on our part. (Incidentally, the term "political" applied to an action on our part means in radical rhetoric not "political" but "narrow" in its basis.) As more and more units are assessed for quality, we are increasingly likely to meet defensive postures on the part of its members that clearly point out the need for advising and counseling junior and new faculty, themselves newly introduced, to the complex arrangements of graduate education.

My fourth and penultimate observation on the graduate dean's condition is an observation of the student movement, as this movement has redirected itself back into the establishment and receives legal and financial support from the regulatory agencies of the state and federal governments. I refer to the testing of the graduate office's firmness and the tidiness of the institution's due process, and decision-making machinery. We face many kinds of grievance but I remain convinced that inept administration is a major problem, for example: It *is* possible to have on hand an orderly admissions process wherein the departments are required to document each step and appraise each criterion. This is as true of our examining system as it is of our admissions procedures.

We are in a period in which the courts are asked to rule on the results of our academic judgements. I am hopeful that such testing will be confined to the *procedures* we used in coming to our judgements rather than to the *judgements per se* that we have made about the students' performance.

The fifth and final observation concerns the condition of research about the stuff of our own administrative lives, namely the field of "higher education" itself. At the present time we are treated to an obsession with matters of educational administration and public policy issues bearing upon educational administration. We need a much broader commitment in this research to the humanistic and non-policy social sciences aspects of education. For example, a wide range of issues including the relation of education to the economy, to law, to child raising, to political values and activities, etc. . . should come under the purview of research in higher education and such research should be moving toward much broader faculty involvement. An active role should be assigned to educating extramural agencies to support the type of work the *institutions* regard as most important. GRE research is a case in point; responsive, etc. This will be recognized by many to be a responsibility of the graduate dean in collaboration with those in the institution whose disciplines bear upon higher education. In other words, I suspect a vacuum here and, as the perfect gas, we should fill it.

Now some comments upon the activities of the CGS itself. Some task force activities will shortly be reported to you. Especially timely in my view are the task force studies on master's degree institutions and the Master's Degree under Dale Comstock and the task force on Non-resident degree programs

conducted by institutions at considerable distance from their home base; this group has been chaired by Shirley Spragg. Revisions of the Council's publications, *The Master's Degree*, *The Ph.D. Degree* and *Professional Degrees* have been completed after very great effort by the Publications Committee (Jake Cobb chairing it). I think it fair to say that many of the issues that have been raised in the past years at these meetings have been the subject of continuing study that is now coming to conclusion and final reporting to the membership. Much of the work of the Council is carried on by Council members serving on national education organization committees and comes out under a variety of agencies to which CGS lends its support. Our President will report on much of this and he and John Ryan give part of their time to these joint operations with the American Council, accreditation agencies, international education agencies, ETS and GRE and so on. In consequence, the annual meetings can reflect but a sampling of such activities and of such issues facing us.

In the internal operation of this organization there are certain changes that time and events are dictating. In order to have a better indication of the directions this organization should be moving in, of the problems that it should be tackling, of the form the organization should adopt, there now exists a standing sub-committee of the Executive Committee of Plans and Policies, constituted in such a way as to draw upon the experiences of those who have been elected to lead the organization in the past as well as to include the Chairman-Elect as a means of instructing that office of the thinking of the very committee he will chair.

Ways in which the general membership's opinion should be surveyed will be high on the sub-committee's agenda as well as substantive questions concerning the specific role of the Council in expressing the views of its membership to those whose actions and decisions on a national basis affect graduate education.

Although there is general cohesiveness in this organization, many have commented on the need to differentiate *our* concerns so as to ensure that all segments of this Council feel their views are adequately reflected in policies, task forces and general expressions of the Council's concerns. While a certain degree of heterogeneity characterizes the over-all work of the Council, there are important institutional homogeneities in our membership too which have equal bearing on the effectiveness of the parent Council.

It is a further resolve of the Executive Committee that the voice of the Council must be heard in and for itself on many issues, unaligned with that of other agencies, that the Council's views on graduate education reflect specifically the multifaceted institutional membership and speak to issues not necessarily identical in topic or point of view with those of the Association of Graduate Schools in the AAU. It is, I believe, fortunate for AGS members of CGS to have the opportunity of presenting consequently a more diverse picture of the problems that either membership alone permits.

It is for this reason that your nominating and program committees increasingly need input from the general membership about suitable nominees for committee service, about topical subjects for these meetings, and about the Council's short and long-range program. The Plans and Policy Committee under the leadership of the Chairman-Elect each year needs your suggestions

and comments about the Council's directions; the Executive Committee and officers need your views on any issue whatever in graduate education that is of concern to you. It is determined to raise its level of organizational visibility in behalf of the needs of its members.

In conclusion, I wish to express once again the great sense of honor and service that have been mine during the year. Many assignments come to the Chairman that are not even hinted at in the invitation to serve but after all (as with the iceberg) that is also the essence of a graduate deanship. Thank you for your kind attention.

We now shall hear the annual report of President Page.

PRESIDENT'S REPORT

J. Boyd Page

It is a pleasure to have again an opportunity to report briefly on the activities and the general state of affairs of the Council. Before embarking on this brief report, however, I would like to bring to your attention a few references to history which I believe help put our present activities in appropriate context.

As you may know, 1976 marks the centennial of the organization of the first graduate school at Johns Hopkins University in 1876. Some graduate work had been conducted at a few universities earlier but the work was not administered in a graduate school in the sense we know it or the programs were only in operation for a short time. The first doctorate awarded by an American university was awarded at Yale in 1861. By an interesting coincidence, the Council of Graduate Schools was founded in 1961.

In the year of the Council's founding, total graduate enrollments were approximately 400,000. This year, fifteen years after the Council was founded, current graduate enrollments are approximately 1,200,000, a three-fold increase. In 1961 there were 11,600 Ph.D. degrees awarded. In the academic year 75-76 our best estimate is approximately 32,000. Again, very nearly a three-fold increase.

I do not mean to suggest that the Council is responsible for these dramatic increases. It is striking, however, that in the fifteen years following the centennial of the first doctorate, such rapid expansion in graduate education has occurred. According to the National Center for Educational Statistics, there are now in the United States (in round figures) 850 graduate schools, 540 offering work to the Master's, 310 offering work leading to the Doctor's degrees. Current membership of the Council has grown from the founding 100 in 1961 to the current 352. Our best estimate is that the members of the Council currently enroll about 845,000 graduate students.

The Council is, in the middle of its second decade, a major force representing higher education in the fullest sense. In what it represents and what it accomplishes, the Council is the sum total of its members. It makes its contributions through the activities of committees, of task forces, through cooperation with other associations and organizations, and by activities of its officers and staff.

This year has been marked by significant achievement. The level of activity has been stepped up markedly. Under the effective leadership of Chairman Elberg, the Executive Committee has embarked upon a thorough review of the many activities and responsibilities of the Committee, and its role as the guiding force in Council affairs. The Committee has determined to play a more active role in all of the affairs of the Council with new direction and new activities in prospect. This increased level of activity is both welcome and timely.

Certainly no one in this room needs to be reminded that graduate education is today being conducted in an atmosphere characterized by change and that we face an uncertain future. This is not to imply that it is a threatening future. I am confident that graduate education will continue to play a central and essential role in our society, but I am much less confident that any of us can see with clarity exactly what that role will be and what the nature of the enterprise will be as we approach the end of the second decade of the existence of our Council.

You can in the near future expect to see increasing evidence of the new activities of the Executive Committee and your officers; activity which should lead to more effective relationships, both with the public and with our own member institutions. The excellent program for this meeting, organized and planned by Chairman-Elect McKee and his advisory committee, is the first evidence of the future oriented thrust. I'm sure you will agree that it is a program of high quality in which many of our most pressing problems will be addressed. There is much more hard work than meets the eye, required to plan and arrange a program such as this and Chairman McKee and his committee are certainly to be commended.

May I also acknowledge with sincere appreciation the contributions of our excellent staff, Dr. John Ryan, who is responsible for many activities, (not the least of which is management of the myriad details involved in running these meetings), and our excellent secretaries, Mrs. Judy Peluso and Mrs. Marilyn Stewart, who carry a heavy load of responsibility, and serve most effectively in the day to day operations of our central office.

The activities of the Council are many and varied. Some are evident, but many may not be evident, even though they are significant in promoting graduate education of quality. Broadly, what the Council is attempting to do may be classified into two categories. Looking outward, we attempt to interpret the needs, the nature and the values of graduate education:

1. to the various agencies of government, both state and federal, which may provide support or on occasion may restrict activities through imposition of unrealistic demands and regulations,
2. to other systems of higher education (I refer here to other countries) and
3. to prospective students and the public and, on occasion, to ourselves and our faculties who need to be reminded of what we are about in graduate education.

A significant part of our overall activity has an internal direction designed to provide assistance:

1. to graduate schools in development of standards, procedures, guidance

and information on details of administration and processes of graduate education,

2. to agencies of government, to foundations and the public at large through development of reliable current statistical information,
3. to legislators and their staffs in the drafting of new legislation and appropriations for the creation and,
4. development and evaluation of instruments for assessing quality and costs in graduate education.

A third more specific category of activities relates to development and publication of standards for degrees and for graduate programs and certification. These activities center primarily on work with accrediting agencies and with those considering establishment of new programs or continuance of established programs of quality.

A fourth category centers on providing for and participating in discussions where representatives of all agencies and associations can come together with experienced graduate deans, to discuss common concerns and opportunities.

A fifth category is directed toward providing assistance to students, both foreign and domestic, to enable them to make better choices, and to participate actively in programs relating to international exchange of students and educational leaders.

Last and by no means least, is our very extensive consultation service in which we work with member institutions in arranging for expert consultants.

Time is too short to attempt a complete inventory of how these many purposes are addressed. Accordingly, just a few will be mentioned to indicate something of the scope of our activity. Let me remind you again however that these involve individual members, task forces, committees, officers, as well as staff.

I have mentioned consultations. In this year, 54 programs have been reviewed by 103 consultants. Currently, 18 additional programs are being reviewed by 42 evaluators at 7 institutions.

Our Gradcost study, supported by NIH, was designed to develop and test instruments for determination of true costs. The project is nearing completion under the able direction of Dean McCarthy and the late Dean David Deener. The report on this project will be made separately, but it is believed that the results of this study will constitute a major contribution both to institutional processes and to government and regulating agencies so that reliable and accurate cost information can be developed.

The Dimensions of Quality project has just been completed. This work was supported by the National Science Foundation and has been conducted by the Educational Testing Service under contract, with Dr. Mary Jo Clark as leader. A separate report will be made in these meetings, so I will not go into detail. Briefly, however, the research has shown that there are several dimensions indicative of quality graduate education which can be identified and evaluated. Furthermore, an evaluation based on the single characteristic, research excellence, is inadequate for assessment of quality. It is already apparent that the results of this study will have far reaching implication and importance to department chairmen, deans, to academic officers, Boards of Regents and coordinating boards; in other words, to all who are concerned with provision of

quality programs to meet the needs of new populations of students. The Fund for the Improvement of Postsecondary Education has made a grant to the Council to enable us to summarize the results of this important study, and made them generally available with recommendations and instruments which can be used for meaningful assessment of quality in graduate programs.

The Council continues to press, in cooperation with other associations, for appropriate legislation and funding in support of graduate study. We participate actively in drafting new and proposed legislation and in review of proposed regulations.

The Council, with the Commission on Postsecondary Accreditation has established a joint task force on accreditation of graduate study, has undertaken a revision of our previous position statement and is working toward support and encouragement of strengthened accreditation activities which will help assure that all programs made available to the public are of acceptable quality.

A very significant major thrust of the Council is in the new series of publication: policy statements and position papers. A very carefully developed statement on the Master's Degree, and another statement on the Organization and Administration of Graduate Study will be issued very soon. Statements on the Doctor of Philosophy Degree and on the Professional Doctorates are in final stages of preparation and will be issued soon. Others are in various stages of preparation.

The Council is represented and participates actively on the affairs of the Office of Educational Credit of the American Council on Education, particularly with the task force on credits and credentials looking into the meaning of degrees, credits, degrees as credentials, transfer of credits, the evaluation of student achievement for credit assignment.

The foregoing is, of course, a sketchy list of a few of our many activities. Finally reference will be made to activities conducted jointly with the Graduate Record Examinations Board. Chief among these is the annual publication of the *Graduate Programs and Admissions Manual*. This is a unique contribution presenting current data on program offerings in over 500 graduate schools. It has achieved world-wide recognition. Last year approximately 75,000 individual copies were sold world-wide. You are well aware, also, I'm sure, of the annual enrollment survey prepared jointly by GREB and CGS', under the able direction until recently of Dr. Robert Altman, who has recently moved to Director of the College and University Programs at ETS. The current survey has been prepared under the able direction of Jan Somerville, the new program director of the Graduate Record Examination Board. The report of Part I of this survey will be made available to you at the end of this meeting and will appear in the published proceedings, but I would like now to mention just a few highlights. For the first time in the five years in which this survey has been conducted, overall graduate enrollments show a decrease—this year—2.3% for public institutions at both Master's and Doctoral level. The decrease was 3% for private, 0.3% increase for public schools. The first-time graduate enrollment, which of course indicates more current trends, shows a 5.3% decrease for public institutions and a 1% increase for

1. Editor's note—the full text of the report may be found on page 185.

private institutions, averaging out overall to a 3.5% decrease over last year. The number of applications for graduate study showed a 1.3% increase; the number of graduate assistants showed a 2.6% increase. The number of graduate fellows on non-service required appointment showed a decrease of 0.8%. The distribution between full-time and part-time enrollment stayed essentially the same as last year with 42% full-time and 58% part-time. The number of Master's degrees awarded increased 5.8% in public institutions as against 0.9% in private. The number of Ph.D. degrees, on the other hand, decreased 1.1% at public institutions and increased 1.7% at private institutions for an overall 0.3% increase.

It has been a privilege to continue to serve the Council through this past year. With the increased activity of the Executive Committee, new directions can be anticipated. The impact and effectiveness of the Council, both to the public and to its members should be enhanced. Your active cooperation is solicited, an interesting year ahead should be in prospect. Thank you.

Report of the Task Force on Gradcost

Joseph L. McCarthy

Since the last meeting of the Gradcost Committee in Atlanta in December of 1975, substantial additional progress has been made toward the CGS "Gradcost" project goal of estimating costs of graduate programs leading to the degrees of Master and Doctor of Philosophy by several different procedures at several different universities and colleges.

First, with great regret we report the deaths of two of our colleagues during the report year, Dr. Steven H. Hatchett of the National Institutes of Health and Dr. David R. Deener of Tulane University.

As President Boyd Page has written, Steve was a good friend and strong champion of graduate education, who almost single-handedly promoted support for the Gradcost project. He will be sorely missed.

Dave contributed much to graduate education and especially to the Gradcost project in which he served as Chairman of the CGS Gradcost Committee and co-director of the study. To me, over quite a number of years, he was a close friend and respected colleague. It has always been a pleasure to hear his wise analyses and cheery comments. He was an outstanding man.

The Gradcost study was initiated in 1970 with major financial assistance from the National Science Foundation. The results of this study were published in 1972 by the Council of Graduate Schools in the United States in the form of three reports. Two were authored by John Powel and Robert Lamson and were titled "An Annotated Bibliography of Literature Relating to the Costs and Benefits of Graduate Education" and "Elements Related to the Determination of Costs and Benefits of Graduate Education." The third was written by Joseph L. McCarthy and David R. Deener under the title . . . "The Costs and Benefits of Graduate Education: A Commentary with Recommendations."

The Gradcost II project consisted of developing preliminary statements of procedures and also estimates of the costs for Master's and Ph.D. programs in chemistry at two universities. This work was conducted by Joseph L. McCar-

thy and David R. Deener with financial assistance from CGS and the results have been summarized in an informal report which was accepted by the Executive Committee of CGS and filed during 1975.

The Gradcost III Study was undertaken in 1974 with major financial assistance from the National Institutes of Health under the policy guidance of the CGS Gradcost Committee and with Joseph L. McCarthy, University of Washington, and David R. Deener, Tulane University serving as director and co-director, respectively. The work is being carried out mainly in Seattle at the University of Washington where research associate Dr. William D. Garrison is devoting full time to this activity.

Extensive academic and financial information has now been collected from some twelve diverse types of universities and colleges in the United States concerning Master's and Ph.D. programs offered in the fields of biochemistry, cell biology, chemistry, economics, English, mathematics, and psychology. Costs are being considered in four categories: "departmental costs"—those reflected directly in the departmental budget; "support costs"—those reflecting extra-departmental institutional support such as library, student services, plant operation and maintenance, and general institutional and administrative costs; "student appointment costs"—those associated with graduate student fellowships, assistantships, tuition waivers, etc; and "grant and contract research costs."

Computer programs have now been developed and departmental costs of Master's and Ph.D. programs have been estimated for most institutions and most fields of concern using five different allocation procedures identified as CLASSCUT, CLADCUT, CREDCUT, FAACUT, and COMPCUT. For most cases, "support costs" have also been estimated. These cost estimates, along with statements of the procedures used to make them, have been transmitted to representatives of the participating institutions who are now returning comments and suggestions.

During the next few months, procedures and estimates for departmental and support costs will be refined into final form. Major attention will be devoted to the development of policies, procedures, and estimates for allocation of student appointment costs and grant and contract research costs to graduate programs, as may be appropriate. Writing of the report text will be proceeding and it is anticipated that the Gradcost III project will be completed and the final report published by 1 October 1977.

It is hoped that the results of this study will help interested persons to understand the nature and magnitude of the costs of graduate education, and that a small number of alternative generally applicable procedures may be identified by which approximately valid estimates of the costs of graduate degree programs may be made expeditiously and inexpensively.

Comments and suggestions concerning this study and possible application of the findings will be welcomed and may be addressed to the writer or to Dr. Garrison at the location given below.

Report of the Task Force on the Non-Degree Student

Norman N. Durham

Thank you Mr. Chairman. In the late spring Chairman Elberg appointed the following as members of the task force on the non-degree student—Dean Mary Ann Carroll, Indiana State University, Dean Clarence Stuckwisch, University of Miami, Dr. Charles Woolf, Arizona State University, Dean Hans Hillerbrand from the City University of New York, and Dean Anthony Moye from the California State University College System. The charge of the task force was to evaluate the non-degree student from the point of impact on the academic and financial program of the university and to prescribe any policies and/or attitudes that CGS institutions might wish to consider. We submitted a survey to member institutions. The responses have been returned and I would like to express our appreciation for your participation in completing that survey document.

There are some rather interesting brief comments or notes that I would like to pass along for your information. Non-degree student enrollment has increased greatly in the last few years. We anticipate that it will become more prominent in our educational programs and I think that if one looks at areas of governmental funding—continuing education, adult education—we are certainly going to find this to be a very prevalent population. Most of the current enrollments are handled through graduate colleges and there has been little effort to impose any limits on students in a non-degree status. This type of status is used for students in the process of formally seeking admission to a degree program and is also used for students during a probationary period. Most institutions will permit credit earned by a non-degree student to apply to a degree program. Some institutions indicate that special criteria may be applied if the hours are applicable to a degree program. In most cases, students enrolled in the non-degree status must supply additional transcripts to the admission office. It is the consensus of institutions that some type of certification is important to non-degree students but very few of the responding institutions provide a certificate or other form of recognition. The respondents did not believe that special accreditation programs were necessary for non-degree enrollments; but they did indicate that it would be helpful if CGS would establish criteria to assist graduate deans in evaluating credit earned in a non-degree status. It is not envisioned that a terminal Master's degree would be developed for a non-degree generalist but it was the opinion of institutions that graduate deans must assume responsibility for individuals enrolled as non-degree students since nearly all phases of their work is being performed at a postbaccalaureate level and lies within the graduate program. We will be massaging the information that we have in the very near future to prepare a final report, and we would be most pleased to hear from you if you have some ideas or specific areas that you would like to see us consider.

Report of the Committee on the Master's Degree

Bernard J. Downey

The Committee on the Master's Degree was established by the Executive Committee in the spring of 1976. The committee membership consists of Dale Comstock, Central Washington State College (Chairman), Carolyn Hargrave from Louisiana State University, Etta Onat from Yale, Albert Yee from California State University at Long Beach, Lon Weber, Rhode Island College, and Bernard Downey, Villanova University.

The mandate of the committee is to consider and advise upon the requirements, the standards and the varieties and utility of the Master's degree. The desire of the committee was brought about by the tremendous increase and diversity of Master's degrees particularly those with an applied career-oriented focus and a general concern for the quality of Master's degrees coupled with the realization that essentially no studies have been made on a comprehensive scale for Master's degrees as has been done for doctoral degrees. The committee's activity thus far has consisted of several two-day working sessions. The principle activities have been to review the revised edition of the CGS pamphlet on the Master's degree and provide recommendations for additional changes particularly those related to positive action concerning the improvement of quality. A second activity, based on the recognition of the need for a comprehensive survey of graduate education at the Master's level, has led the preparation of a proposal, which is now in its third draft. The major roles of this study are concerned with the development of a comprehensive statement of the present status of the Master's degree in American higher education and developing recommendations which would be related to the future role of the Master's degree to insure both quality and effective service to society.

It is hoped that the final draft of the proposal will be in the hands of the Executive Committee very shortly for their consideration.

AFGRAD Report

S. D. Shirley Spragg

I am pleased to report on behalf of the African Graduate Fellowship Committee and its chairman, Dr. Gustave Arlt, who had to return to Los Angeles today.

The AFGRAD Committee, as a good many of you know, is a rather special kind of committee of the Council of Graduate Schools. Responsibility is secured with the African American Institute for policy direction and fellowship selection of fellows in the AFGRAD program. Since its inception in 1963 through the present academic year, there have been approximately 1300 awards made and some 33 African countries and 247 American universities have participated in the program. Over this period of time, the degree completion rate has

been 92% and the repatriation rate has been also over 91%. This is a very unusual record for a foreign fellowship program.

The program is supported in three ways. In the present academic year, the sponsoring agency, the Agency for International Development has contributed some 2.4 million dollars. American universities through their award of tuition scholarships and remission of tuition and fees have contributed at the very least some three quarters of a million dollars. The African governments involved, through their support of travel expenses have contributed over $200,000.

One of the points that I would like to have you keep in mind is that this year the timetable for selection is going to be somewhat slower. Negotiations have been delayed with AID and instead of a meeting in late January to make the selections and sending the nominees on to participating institutions it will be somewhat later than that. The principal reason for saying this is because we know that a good many participating institutions reserve a certain number of tuition scholarships for individuals in this program. We ask for your cooperation in waiting a little longer because nominations will be sent forth.

The Committee wishes to thank you for the continued support you have given this program and we would like to call the existence of this program to the attention of those institutions who have not participated so far. We urge that those of you who may be interested in the program and would like to know more about it for the possibility of participation, contact Dr. Ronald Springwater at the African American Institute in New York City.

Report of the Membership Committee

Robert O. Collins

I am pleased to report in behalf of Dean Ebersole of Temple University who serves as Chairman of the membership committee. The membership committee is that body which reviews applications for membership in the Council. The members of the committee include Dean Mark Ebersole, Dean Carol Tatham, University of Cincinnati, Dean Frank Hilferty, Bridgewater State College and myself.

The committee met this morning and was pleased to learn that the Executive Committee of the Council will be appointing a committee to review the requirements and policies concerning membership in the Council.

NEW BUSINESS

Frederick Crawford

MOTION FROM THE RESOLUTIONS COMMITTEE

Those attending the Sixteenth Annual Meeting of the Council of Graduate Schools in the United States hereby record their deep appreciation to:

1. Chester McKee (Program Chairman) and his committee for their work to

provide a stimulating program of lectures and workshops on significant current issues in graduate education;

2. Boyd Page and his staff, particularly John Ryan, for facilitating the efficient conduct of the meeting in congenial surroundings, and to

3. Sandy Elberg (Chairman of the Council) for the countless services that he has rendered to graduate education and the Council during his term of office. He will long be remembered for the grace, distinction, and modesty that he has brought to the Chairmanship; for the eloquence and good humor with which he has expressed himself, and for his personal charm and warmth. Those seven deadly virtues have made him a demanding but exemplary Chairman for the past year, a formidable but humane dean for the last fifteen, and an enduring model for us all.

Report of the Nominating Committee

C. J. Nyman

The report of the Nominating Committee recommends for a three year term on the Executive Committee of the Council—Eastman N. Hatch, Dean of the School of Graduate Studies, Utah State University; Gail P. Fullerton, Dean of Graduate Studies and Research, San Jose State University; and Oscar A. Rogers, Dean of the Graduate School, Jackson State University and for a one year term on the Executive Committee—J. Knox Jones, Jr., Vice President for Research and Dean of Graduate Studies at Texas Tech University.

Sanford Elberg

Are there nominations from the floor? If not, all those in favor of the nominees as announced signify by saying aye, opposed?—carried!

C. J. Nyman

We are also required to elect members for the 1977 Nominating Committee. The Nominating Committee presents for your consideration the names of Dr. John Nellor, Dean of the Graduate School, University of Nevada, Reno; Dr. Harry Sisler, Dean of the Graudate School, University of Florida; and Dr. Albert C. Yates, University Dean for Graduate Education and Research, University of Cincinnati.

Sanford Elberg

Those in favor of the nominations, say aye. Opposed?—carried!

It is my pleasure to report that the Executive Committee has selected as Chairman-Elect for the coming year, Dean Donald J. White, Dean of the

Graduate School of Arts and Sciences and Associate Dean of the Faculties at Boston College.

Before turning over the gavel, it gives me great pleasure to express deep appreciation to the chairman of the magnificent Resolutions Committee, Dean Crawford and also to express my own personal thanks to President Page and John Ryan and members of the Washington office for the magnificent support they supplied regularly and over and above the call of duty to both the chairman and the Executive Committee. It is a great pleasure to acknowledge that service. Dean McKee, it is now time for me to launch you, and I turn over this gavel to you as the new chairman with the hope that you will take responsibility today for introducing the item of new business. In case there are any fireworks, I have retired.

J. Chester McKee

I would like to say that for the past three years it has been a pleasure to work with the Executive Committee and the staff and we look forward to a very productive and active new year. There is one item and that is the item of new business—if there is none, this meeting is adjourned.

Concurrent Workshops

Friday, December 10, 1976, 9:00 a.m.-10:30 a.m.

ASSESSING DIMENSIONS OF GRADUATE PROGRAM QUALITY

Chairman: Mary Jo Clark, *Educational Testing Service*
David G. Barry, *University of Toledo*
Lloyd E. Berry, *University of Missouri-Columbia*
Michael J. Pelczar, Jr., *University of Maryland*

Mary Jo Clark

Welcome to the workshop on assessing dimensions of graduate program quality. I think probably all of you know that the research that I want to talk about was carried out for the Council of Graduate Schools by Educational Testing Service with support from the National Science Foundation. I am happy to report that we have completed the study and are in the process of sending copies of the technical report to all participating universities and to others who were involved in the project.

What I want to concentrate on today is a kind of quick overview of the kinds of program characteristics that might be measured if one assumes that it is desirable to have multiple measures of quality rather than a single measure of quality such as peer ratings. If we assume that it would be desirable to have measures of many different aspects of program quality, then we must deal first with the question of what program characteristics we should try to measure. What do we need to know about programs in order to make judgments about their educational excellence? Second, how might we find some reasonably reliable and relatively easy ways to obtain indicators about the status of different program characteristics? These queries led to the central questions in our study: Could we get reasonably good information about a variety of program characteristics? How do these measures relate to one another and what do they seem to tell us about graduate programs?

The third question I would like to deal with briefly this morning is why collect multiple dimensions of program quality? This relates to the different uses that might be made of information about various program characteristics, different potential users of the information, and the possibilities for relating measures of program characteristics to program purposes.

The focus for this particular research study was provided by a survey of a panel of graduate deans, many of whom are probably in the audience. The survey provided a kind of laundry list of program characteristics and asked graduate deans to determine which of the characteristics were most important to know about in order to gauge program quality. The survey identified a list of thirty characteristics which I wish to review quickly so that you will have some sense of framework. (Overhead transparency #1)

The characteristics were grouped into four categories. Characteristics about faculty concerned academic training, research activity, research produc-

tivity (publications, pamphlets, concerts, and other products of various sorts), teaching effectiveness, concern for students, involvement in program affairs, and morale. Under students, most graduate deans agreed that the most important characteristics to know about were the academic ability of students at entrance, their achievement of knowledge or skills in the program, the professional accomplishments of graduates, and student judgments about program quality—what the students in the graduate program thought about the education they were receiving and how well the program's graduates felt it prepared them for what they were doing. Under program resources, variables included financial support of the program and the adequacy of facilities such as libraries and laboratories.

The fourth category of characteristics was program operations which is somewhat of a catch-all for a variety of things. An important criterion of this list was the purpose of the program. What is it trying to accomplish, what type of courses does it offer, what are its admissions policies? In addition, faculty welfare, evaluation of student progress, program leadership, job placement of graduates, advisement of students, student-faculty interaction, internships and assistantships, degree requirements, and relationship to other programs were also considered important. These four categories of important program characteristics provided the framework for the research effort.

We also asked the graduate deans to indicate the kinds of measures they thought would be most adequate and most acceptable as indicators of these characteristics. They endorsed visiting teams as good sources of information and thought it would be nice to have some detailed financial information. They also thought judgments by participants were a good source of information. Since the research project was particularly interested in information that was reasonably easy and inexpensive to collect, we elected to concentrate on the information that could be provided by those who were most directly involved in the programs, namely, advanced graduate students, faculty members, and fairly recent alumni. In addition, we collected some factual information about each program, such as its size, admissions experience, and financial aid to students.

I want to make three quick points about the frame of reference for the study. First, it is important to remember that this is only one way of collecting information about programs and probably it will never be sufficient to describe all aspects of any particular program. The effort here was not to be all-inclusive but rather to measure selected important characteristics in the same way in several different universities so that it would be possible to compare the chemistry department at University X with the chemistry departments at other universities on this limited set of performance indicators.

The second point I would like to mention is that the study focused on doctoral programs and specifically on Ph.D. programs in three disciplines: chemistry, history, and psychology. We do not have any information in the study about Master's level programs or other disciplines, and the extent to which the data can be generalized to these other areas is uncertain.

The third thing I want to mention is that obtaining information about program characteristics does not remove the necessity of making value judgments about quality. The data must still be interpreted sensibly by experts in the discipline or, more generally, in graduate education.

The study enlisted the cooperation of twenty-five universities around the country. The universities which were selected represented a stratified random sample to represent the production of doctoral degrees in a recent three-year period. You will see from the list (overhead transparency #2) that while there are a number of nationally known, large, prestigious universities in the sample, there are also a number of relatively small universities with small doctoral programs.

As mentioned earlier, the data were primarily questionnaires to advanced doctoral students, faculty members, and recent alumni. All of these data were combined within departments to provide a department-level indicator on each characteristic. For example, there were about 100 student respondents from the University of Wisconsin psychology department and ten respondents from the psychology department at the University of Toledo. In both cases, the responses were combined and only one score was used to represent the department on any particular characteristic. Therefore, each department had as much weight as any other in the statistical analyses regardless of how many people responded to questionnaires.

The characteristics we looked at were quite varied, but were organized into several areas or dimensions of quality: faculty training and performance, student abilities and achievements, the physical and educational resources that were available to the program, the learning environment of the program, program contents and procedures, and alumni accomplishments. (Several overhead transparencies, listing 23 specific program indicators and comparing the status of two programs of similar size and purpose on each of them.)

For a variety of reasons many of the things that are discussed in the technical report turned out to be not very useful as indicators of program quality when the focus was on looking at programs in relation to one another. For instance, almost all of the faculty members in all of the programs had Ph.D. degrees. If 96 to 99 percent of the faculty in every program have a Ph.D., there is little point in trying to profile that characteristic. Some types of information also were relatively more difficult to obtain than others. This was especially true of some of the information we tried to obtain from departmental records. It will come as no surprise to most of you to hear that departments seem to keep their records in very different ways. In fact, some departments do not appear to keep records. Therefore, it was difficult to get information that would be comparable across departments on measures such as admissions selectivity, financial support for research, or the kinds of jobs taken by graduates after completing the program.

In designing the research, we hoped to be able to consider program status on various characteristics in relation to a program's primary purpose—to train scholars and researchers, college teachers, or other kinds of professional practitioners. However, when we tabulated the data, we discovered that the faculty members in all of these doctoral programs said that the program gave primary attention to the training of scholars and researchers, and that they thought this primary purpose was appropriate for their program. The attention given to preparing teachers was also fairly strong in a number of programs, and a few programs gave some attention to the preparation of other kinds of professional practitioners, but these emphases never outweighed the emphasis on research.

Therefore, the study reflects more of the traditional model of Ph.D. training than had been hoped, and was not able to evaluate the extent to which the assessment of quality might vary with differing program purposes. (Overhead transparencies to show faculty perceptions of the current and ideal emphases of their programs, by peer rated quality of the graduate faculty.)

Concerning possible users and uses of the program assessment materials, we identified at least four possibilities that appear to merit further consideration: (1) individual departments, for self-study and improvement; (2) universities, as part of the procedures to monitor and assist individual programs and to make decisions about the allocation of resources within the university; (3) agencies outside the university, such as state boards of higher education or professional associations, as they review programs; and (4) prospective students, as increased and improved information about programs for use in the application and selection process. Which of these uses are most appropriate, and under what conditions, needs further discussion and study.

It is now your turn to reflect on what all of this means for graduate education. Are the indicators convincing? How important is comparative data? How might the indicators be used most productively? Can they be generalized to non-doctoral degree programs? It is time to hear from the panelists and from the audience. Thank you.

Lloyd E. Berry

At the outset, let me say that I recommend the report to you because of the various dimensions that it takes. One of the things we have tried to obtain further information on at our institution is feedback from our alumni. As an example, one of the things that a student must do before receiving a Ph.D. or M.A. degree is make an exit interview and certify to a section of a document which asks, Do you have a job? If so, please indicate what it is and where it is located?

To me, one of the most significant things in the training of students relates to alumni attitudes after they have been out in their particular field for five years. The question which frequently arises in my mind concerns what happened during their time as graduate students that contributed to their making either a modest salary or assuming the presidency of a major corporation. What did the educational experience contribute in relation to what the individual is doing?

It is interesting to note in the report that alumni views suggest that the relevence and appropriateness of their current employment are not related to any appreciable extent to the prestige of the program from which students receive their degree. The study also found that there were expected differences in the employment patterns of graduate students from each of the disciplines. That is an interesting commentary. In other words, receiving an M.B.A. from a major institution was not considered to be any more significant than receiving an M.B.A. from institution X. I think the study also shows you that we are getting away from the Roose-Anderson type of ranking—who is the four-star general and who is the three-star general and who is the sargent?

This kind of information available in the report is valuable and I highly recommend it to you if for no other reason than to get the questionnaire out of it which you may distribute internally. I believe the report can be refined and I also think that the refinement is up to you as deans in relation to your own particular campus. In concluding, I would say we have come a long way in the development of this study and I hope that you will take it very seriously. It is one of the few documents that I have seen lately that is extraordinary.

David G. Barry

Having reviewed many inconclusive efforts to identify specific criteria for assessment of graduate programs, I took the position that we should cooperate fully with ETS-CGS in what appeared to be a promising project and let the results define the potential for future efforts. Having now had opportunity to review the final report, "Assessing Dimensions of Quality in Doctoral Education: A Technical Report of a National Study in Three Fields", October, 1976, I am persuaded that something very important has been accomplished. The program was well conceived and well planned, well implemented, and well reported. The results are clearly and honestly stated. In areas where firm data are evident, these are described with confidence. In other areas where data at this time can be described as "suggestive only", these are clearly identified and discussed in that context.

For these reasons, I believe this to be a very important report and hopefully, a provocative one that will stimulate further thought and refinement of method and analysis based upon these first efforts. I consider the results to be significant because they do not attempt to set peer judgment approaches to program assessment aside. Rather, the purpose was to attempt to establish some of the bases on which peer judgments are usually made by identifying common criteria and methods of analysis. If such criteria and methods could be set down where all might review them, they could become parameters that could guide others. By clarifying these dimensions of assessment, this project leads in new directions that I believe can establish the confidence levels on program assessment that are desperately needed.

The publication of this study is fortuitous in timing. In their present form, the results are conclusive and persuasive, enough so that persons or agencies responsible for program assessment must give them due consideration. If alternative assessment methods continue to be used, I believe that those who initiate them are responsible to state their reasons for choice publicly. To do any less is to ignore the results of this carefully developed research.

This is an important issue because while we understand peer review and participate in the process regularly, we also know that the results can very considerably pending upon how and why the peers are selected. If one has confidence in the selection process, that confidence transfers to the results of the analysis. However, the mission and purposes of the diverse federal and state agencies involved with assessment may vary greatly from the mission of graduate education. This is the key to the problem of confidence in selection of peers.

The present study is an important contribution because it provides identifiable baselines of program comparability that if properly applied, can lift efforts at program assessment to levels of considerably greater validity. And these new levels will be much more independent of strictly qualitative personal opinions. Some say program size is a criterion of great significance. If that criterion were routinely applied, programs below a certain threshold level would arbitrarily be closed. In this study, program size is considered, but the analysis clearly identifies the many other considerations that must be considered in addition to size in the assessment of an enterprise as complex as a graduate program.

My next question to both CGS and ETS is what happens next? I believe the results of this study deserve wide distribution and consideration. I hope that regional accrediting associations and federal and state agencies concerned with program assessment will consider these results carefully. As I stated earlier, I think it is their responsibility to consider the results of this research and if they choose to set them aside, to make it clear to the public why they do so.

And, if program assessment is to occur, I believe that common baselines such as those identified in this study should be established for data collection that will supplement and support the peer review process. I say supplement because in the final analysis we must recognize that there are unique elements of judgment that are subjective in character, derived from years of experience. In the ultimate, program assessment judgments must be recognized as human and to some degree arbitrary. I believe that the evidence supplied by this project can assure that efforts at program assessment, though they may in this sense be arbitrary, they will not inadvertently be capricious as well.

The results of this effort by CGS and ETS can give better guidance to these external agencies who are responsible for program assessment. Some agencies do not possess staff with experience in graduate education. It is entirely possible that such leadership could select peers that reflect their own limited experience and possibly even their political concerns. This is another consideration that influences how and why peers are selected. I think we must recognize the complexity of the circumstances that surround any assessment efforts. I consider it in the public interest, as well as that of the Academy, that the best possible approaches to program assessment be pursued. I believe the results of this project have led us in promising directions. I am pleased we were able to participate in it.

Michael J. Pelczar, Jr.

I have elected to confine my remarks to chapter 3 of the report, namely program purposes.

One of the goals of this study was to consider assessment of quality in relation to program purposes. The real question can be stated this way: Is quality in terms of program purposes unidimensional or multidimensional?

In early discussions with graduate deans on the steering committee, which was followed by a questionnaire to 60 deans, there was an indication that some

diversity would be revealed from a national assessment of program purposes, e.g.:

1. Preparation of teachers is the most important task of Ph.D. program in the humanities.
2. In the social sciences it is preparation of teachers and researchers.
3. In the physical sciences it is preparation of researchers.
4. Training of practitioners in clinical psychology is the most important task.

Faculty members and advanced students were asked to rate the degree of importance associated with the following programmatic goals:

Scholars/researchers
Teachers
Practitioners

Questions were asked in three different ways:

1. Current situation
2. Level of importance to personal goals
3. What it ought to be

There was little recognition of objectives other than research and scholarship.

To quote from the report:

"It is not surprising that the high prestige programs all place extreme or considerable importance on preparing scholars/researchers and much less emphasis on the other two purposes, as indicated in Figure 3.1. These are programs with outstanding research faculties and scholarly reputations; programs in the humanities and social sciences as well as in the natural sciences are expected to emphasize research. However, the continuing high level of emphasis on preparing researchers among programs in the medium and low reputational groupings was less expected, particularly when accompanied by relatively low levels of importance assigned to the preparation of college teachers or other practitioners. On the basis of the results described earlier, it was expected that several programs in both history and psychology would emphasize the goal of preparing college teachers, and that a few programs in each field would emphasize the preparation of practitioners. Instead, only the low-rated programs in history assigned more weight to the preparation of teachers than researchers, and only the low-rated psychology departments assigned more weight to the preparation of practitioners than researchers.

All of this simply underscores what we know, namely the Ph.D. degree is a research degree. A great deal of rhetoric has been disseminated about alternative programmatic options. However, to the extent that they exist, they are not regarded as a major goal or contributing to quality. Perhaps the report would be more appropriately entitled "Assessing Degree of Quality in Ph.D. Education" rather that "*Doctoral* Education." This observation raises the perennial question of what new programmatic options can be developed under the Ph.D. label. I am inclined to support the view expressed by Dave Breneman at the recent Woods Hole Conference—that new degree designations should be established for graduate programs where the goal is substantially different from that of the *Ph.D.* rather than manipulating the Ph.D. from objectives for which it is not intended.

I recognize this is a tough problem and a complex issue, and a problem that graduate schools have been side-stepping for too long."

And this is restated more emphatically in the summary:

"In summary, it appears that the purpose of training researchers is the only goal given wide recognition by participants in doctoral programs and is the only goal that is well-defined and well-understood within the disciplines as well as consistently related to many aspects of program structure and function. Increased emphasis on the training of practitioners, and on the training of teachers for undergraduate college positions, is perceived to be desirable but not very compatible with the research emphasis. The dilemma of quality vs. diversity is all too apparent.

Unfortunately, though this research attempted to be sensitive to differing program purposes, it was not successful in identifying and measuring positive and generalizable characteristics of importance to programs that emphasized the preparation of practitioners."

It is important to keep in mind that the purposes or uses for doctoral program quality assessment should:

1. Assist student in making choices (guidance).
2. Assist department in making improvements.
3. Provide the University with an evaluation of its programs.
4. Provide State Boards of Higher Education, Federal agencies and other groups with information on quality programs.

ACCREDITATION AND GRADUATE EDUCATION

Chairman: J. Chester McKee, Jr., *Mississippi State University*
Kenneth E. Young, *Council on Postsecondary Accreditation*

ACCREDITATION AND GRADUATE EDUCATION

Kenneth E. Young

As I looked at your conference program, it struck me that two concurrent workshops are attacking essentially the same topic. One is this discussion of "Accreditation and Graduate Education," and the other is the session titled "Dimensions of Quality." If accreditation can be defined in 25 words or less, that definition would be: "Accreditation is a process that attempts to evaluate and encourage educational quality." And the cause of accreditation could best be advanced by continuing discussions of two questions:

- What constitutes educational quality?
- How can it most effectively be assessed and improved?

(By the way, probably the most appropriate textbook for such discussions would be Robert Pirsig's *Zen and the Art of Motorcycle Maintenance.*)

In my less than two years with COPA, however, I have found that I must spend much of my time explaining to groups—even to sophisticated academic audiences such as this one—what accreditation is all about. Despite the fact that this unique and valuable social enterprise is more than 80 years old, most people—including many involved in higher education—do not really understand or appreciate accreditation. There are at least three reasons for this circumstance:

- The corps of individuals—professionals and volunteers—who have been actively involved in accreditation have been so busy trying to make the process work that they have had little or no time to spend in educating others as to the values and limitations of accreditation.
- The word "accreditation"—not being copyrighted—has been appropriated by other groups and applied to the quality evaluation of such diverse enterprises as hospitals, nursing homes, and prisons.
- Educational accreditation itself has experienced a diffusion and complication of meaning. The accrediting process, which originally dealt with the educational evaluation of quite similar colleges and universities or relatively self-contained professional schools within universities, now is expected to comprehend multi-campus systems, a great diversity of instructions, a variety of sub-units within institutions (some far removed geographically from the parent campus), and a bewildering array of specialized programs.

Furthermore, several recent developments have pushed and pulled accreditation in new directions, tending to distort its original purposes:

- The so-called "student consumer movement" has focused attention on accreditation which has been identified as one mechanism for informing and protecting students. In this context, accreditation improperly is viewed by

some as a "Good Housekeeping seal of approval," presumably guaranteeing every aspect of an institution, for a number of years into the future.

- The federal government increasingly has used accreditation as one element in determining institutional eligibility for federal funds. Although accreditation never has functioned as the sole determinant of eligibility, nor has it served as the only route to eligibility, there has been a growing tendency on the part of many to equate eligibility and accreditation. And, as the federal government has experienced problems concerning institutional compliance with eligibility requirements, a major effort has been launched to involve accrediting associations in the monitoring of institutional activities in a variety of areas, going beyond the evaluation of educational quality.
- As the continuing economic crunch has affected institutions and as declines in enrollment are experienced or anticipated, it is feared that some professional groups may consider accreditation more as a mechanism for protecting their interests within the institution than as process for evaluating educational quality in the public interest. A few presidents and boards of trustees already have complained that this appears to be occurring on their campuses.

All of these developments intensify the need for those involved in accreditation to clarify and communicate the purposes and perimenters of this function.

Accreditation actually focuses on two concerns:

- *educational quality*, defined and interpreted within the context of the institution or program's statement of its own scope and purpose and compared with similar institutions and programs; and
- *institutional integrity*, that the institution or program is what it says it is and does what it says it does, at a given point of time.

Educational quality is evaluated and encouraged by looking at conditions that are believed to be necessary and desirable to assure such quality, and evidence, to the extent that it is available, that the institution or program does indeed produce educational quality.

Basic to the accreditation process, of course, are:

- *the institutional self-study*, a comprehensive effort to assess the effectiveness of an institution or program in the light of publicly stated objectives, involving a broad cross-section of the institution or program's constituencies; and
- *peer evaluation*, expert judgment from outside the institution, usually consisting of professional educators (faculty members as well as administrators), certain specialists according to the nature of the institution or program, and sometimes others representing specific public interests.

Accreditation cannot serve as a consumer protection guarantee for more than it attempts to evaluate. It cannot, for example, predict which institutions are likely to go bankrupt five or ten years from now. Accreditation cannot, by itself, serve as the basis for determining eligibility for federal funds; neither can it function as an arm of the government in policing compliance with various federal and/or state laws and program requirements. Accreditation cannot allow itself to be used for purposes other than evaluating and encouraging

educational quality, and the burden is always on the accrediting body to demonstrate that its criteria and procedures are focused upon the goal.

Historically and currently, then, accreditation at the postsecondary level is intended to:

- foster excellence in postsecondary education through the development of criteria and guidelines for assessing educational effectiveness;
- encourage improvement through continuous selfstudy and planning;
- assure the educational community, the general public, and other agencies or organizations that an institution or program has both clearly defined and appropriate objectives, maintains conditions under which their achievement can reasonably be expected, appears in fact to be accomplishing them substantially, and can be expected to continue to do so;
- provide counsel and assistance to established and developing institutions and programs;
- encourage the diversity of American postsecondary education, and allow institutions to achieve their particular objectives and goals;
- endeavor to protect institutions against encroachments which might jeopardize their educational effectiveness or academic freedom.

If voluntary, nongovernmental accreditation is to be effective, it must achieve and maintain public acceptance and confidence. Accreditation requires some sort of social validation, and that is where COPA comes into the picture.

COPA is a national, nonprofit organization. Its major purpose is to support, coordinate, and improve all nongovernmental accrediting activities conducted in the United States at the postsecondary educational level. In this role, the Council stands as a unique "balance wheel" in relation to:

- nearly 4,000 accredited institutions of postsecondary education that provide its ultimate financial and philosophical support and that look to it as the mechanism for providing order and value to the total accrediting process, and
- about 50 regional and national accrediting bodies with which COPA works closely in order to strengthen and improve nongovernmental accreditation.

Such a large constituency makes COPA one of the broadest in scope of all the postsecondary educational organizations with national offices in Washington, D.C. It is the only one of some forty service organizations housed in the National Center for Higher Education to use the word "postsecondary" in its title. Even so, it is one of the smallest national bodies in terms of staff and budget, preferring—in the tradition of nongovernmental accreditation—to make extensive use of volunteers in the conduct of its activities.

The Council became a legal entity on January 1, 1975, incorporating the purposes, the duties, and the responsibilities of two national organizations of long standing—the Federation of Regional Accrediting Commissions of Higher Education (FRACHE) and the National Commission on Accrediting (NCA), both of which voluntarily dissolved their corporate bodies. In addition, COPA invited into the organization several national accrediting bodies not previously a part of either of its predecessors. Thus an organization was created that

could, for the first time, serve as a national voice on behalf of all institutions and associations concerned with nongovernmental accreditation.

COPA attempts to perform its role as a balancing force in a variety of ways.

- COPA reviews the accrediting practices of its recognized bodies to assure the integrity and consistency of their policies and procedures;
- COPA promotes the interests of the educational consumer, including provision for direct public representation in the conduct of the affairs of the Council;
- COPA develops policies and procedures for the coordination of accrediting activities in the best interests of the institutions and programs affected;
- COPA establishes, promotes, or directs research for the purpose of improving methods and techniques of accrediting;
- COPA represents and speaks for postsecondary accreditation before governmental bodies when appropriately directed to do so;
- COPA conducts an informational program to promote understanding and effective utilization of the accrediting process; and
- COPA prepares and distributes a list of recognized accrediting agencies and work with appropriate parties in the publication of a directory containing information about all institutions and programs accredited by COPA-recognized groups.

The COPA Board has identified six major priorities, namely:

- *Dealing with the Problems of Proliferation and Specialization in Accreditation.*
- *Evaluating Educational Quality.*
- *Measuring Outcomes of Education.*
- *Coping with the Role of Government (Federal and State) in Accreditation.*
- *Developing a National Education/Information Program on Accreditation.*
- *Selecting, Training, and Evaluating Volunteers in Accreditation.*

And at its most recent meeting, the COPA Board issued a Policy Statement on Off-Campus Degree Programs—a subject you also are discussing at this conference. The COPA Board sharply criticized 'a handful of colleges and universities" that "apparently have established off-campus degree programs that are not equivalent academically to similar programs on campus" and that "have allowed these off-campus programs to operate without adequate supervision from the sponsoring institutions." So you can see that COPA has its work cut out for it.

Boyd Page has told you of the decision to have COPA and CGS sponsor a Joint Task Force on Accreditation and Graduate Education. That group already is hard at work. If you happened to read COPA's recent newsletter, an unfortunate juxtaposition of two separate items left the impression that this Task Force was organized in response to a recent critical study of graduate education. Actually, the establishment of the Task Force has been under discussion for about a year, and it represents a follow-up on a similar effort in 1972 which produced the "Joint Statement on Accreditation of Graduate Work," approved by CGS, the Federation of Regional Accrediting Commissions of Higher Education, and the National Commission on Accrediting.

The restudy was prompted by the recognition that a number of important

changes have taken place, in accreditation and in graduate education, in just the last five years.

In accreditation:

- As previously indicated, FRACHE and NCA have merged to create COPA. Thus, for the first time in the 80-year history of voluntary accreditation at the postsecondary educational level, accredited institutions of all kinds and accrediting organizations (regional and national, institutional and programmatic) have come together in a single organization.
- Programmatic accreditation, as distinguished from institutional accreditation, continues to grow, and at an accelerating rate. An increasing number of professional and specialized groups, particularly in health-related fields, are wanting to accredit their training programs and to make this accreditation a prerequisite to the credentialing of the individual, either in the form of professional certification or state licensure.
- The federal government's reliance upon accreditation as a major element in the process of determining institutional eligibility for federal funds has, at one and the same time, enhanced the importance of accreditation to many institutions but also increased the danger of governmental intrusion into what has always been a nongovernmental process.
- The Education Amendments of 1972 and subsequent governmental actions for all practical purposes have redefined the universe of institutions and programs seeking voluntary accreditation from that of traditional *higher education* (colleges and universities) to *postsecondary education* (all formal learning beyond the secondary school level or age of compulsory schooling). Accrediting associations now find themselves evaluating such "institutions" as the Community College of the Air Force and the New York Regents Proficiency Examination Program.

In graduate education:

- Post-baccalaureate programs are being sponsored by new kinds of institutions, such as the Rand Corporation and Arthur D. Little.
- Traditional institutions are offering graduate education in different forms, particularly in settings away from the main campus. We now have Nova University, Brigham Young University, and many others sponsoring programs of this kind.
- The commonly accepted distinction between research-oriented and practice-oriented graduate programs has become increasingly fuzzy.
- Even the distinction between graduate work for academic credit and for other purposes is blurring, as more professionals are required to earn continuing education units for purposes of relicensure or recertification.

These changes, and others, relate to an evolutionary—almost revolutionary—reconstitution of roles and responsibilities in higher education. For centuries in this country, colleges and universities, and the faculties of those institutions, have controlled the offering of academic instruction, credit, and credentials (commonly called degrees).

We are now experiencing an "unbundling" of these three related activities. Students can now obtain academic instruction, academic credits, and academic degrees (and often at the graduate level) from places other than colleges and

universities. For example, many professional organizations offer instruction at the post-baccalaureate level, usually in the form of conferences, workshops, clinics, and colloquia; tests like the College Level Examination Program (CLEP) and services such as the Cooperative Assessment of Experimental Learning (CAEL) now make it possible to convert various kinds of educational experiences into academic credit; and social institutions not primarily educational in nature now award degrees—witness Mt. Sinai Hospital, which gives both the M.D. and the Ph.D., and the Air Force Institute of Technology, the Naval Postgraduate School, the Army Command the Staff College, and the Uniformed Services University of the Health Sciences—all of which have been authorized to grant graduate degrees.

We are in a period of disequilibrium. As Arthur W. Chickering points out in his book, *Education and Identity*:" . . . significant change sometimes involves a period of disequilibrium, upset, disintegregation, out of which a new equilibrium is established." And he goes on to say: "Many conditions and experiences that offer a strong potential for development also contain certain potential for damage." It is our job, the graduate deans and the educational accreditors, to work together in order to recognize and deal positively with the unsettling implications of change, toward the goal of achieving a new equilibrium.

I have more questions than I do answers at the present time. But, as Suzanne K. Langer, whom some consider America's most distinguished living philosopher, once wrote: "An age is not characterized by the answers it gives but the questions it asks." And I am hoping that during this discussion you will help me, and the accrediting community, to better chart a course of action for the future.

BIOMEDICAL SCIENCES—FIRST SESSION

Chairman: William H. Macmillan, *University of Alabama*
Lee Grodzins, *Massachusetts Institute of Techology*

William H. Macmillan

It is my pleasure to welcome you to this session of the Biomedical Sciences Committee. I believe we have a very good program for you today, one that is quite timely. The first part of our program shall be devoted to the *Changing Character of the Postdoctoral.*

The role of the postdoctoral in American higher education has not been reviewed in any detail since the publication of *The Invisible University,* earlier in this decade and since that time many changes have taken place, changes in which many of us have been involved. In recognition of the complexity of the present situation, the National Research Council has initiated exploration of this matter. We are fortunate today to have with us Dr. Lee Grodzins of the Department of Physics, Massachusetts Institute of Technology, who has undertaken a preliminary assessment of the postdoctoral situation in an advisory capacity to the NRC. Dr. Grodzins will initially discuss some of his findings.

THE CHANGING CHARACTER OF THE POSTDOCTORAL

L. Grodzins

The invisible university, a most apt phrase for the postdoctoral institution, has become an integral and important part of the research effort in the United States. The experience of the postdoctoral has been an unspoken requirement for those aspiring to a research position in academia; it has served vital functions for both giver and taker; it has been genuinely valuable to a scientist's career even when academia was not the end result. As academic opportunities diminish, however, the postdoctoral is seen by many to be unnecessary (even a liability) to available careers. There is anectodal evidence that the postdoctoral is being increasingly used to switch to fields of greater employment potential or as a haven till an acceptable position becomes available. At the same time, the commitments to research productivity are forcing some mentors to use postdoctorals as regular (lower paid) research staff members. The pressures against the postdoctoral institution will almost surely increase as academia confronts the demographic problems of the 1980's. It appears inevitable that the postdoctoral institution must modify to accommodate new realities.

Hard data is lacking about these trends so critical to the vitality of academic research and the infusion of young talent into faculty appointments. That

there is an urgent need for data is underscored by a list of questions for which answers are lacking:

Is the postdoctoral appointment still considered an unwritten requirement to a faculty research position?

Is the postdoctoral appointment a help or a hindrance to alternate careers such as research in industry? Other careers in industry? A teaching career in a college?

Why are such large fractions of the Ph.D's in chemistry, physics and the basic medical sciences still taking postdoctorals? Is it for the same reasons as the smaller fractions did in the 1960's?

Has the large (more than 50 percent) component of foreign citizens in the postdoctoral population of the mid-1960's been maintained? Do most of these foreign citizen postdoctorals return to their country of origin?

To what extent are the privileges, freedoms and duties of postdoctorals changing?

To what extent is there a holding pattern in which the postdoctoral is used as a shelter until acceptable positions become available? Has the length of postdoctoral appointments been increasing? Has the number of postdoctorals taken by an individual been increasing? Has there been an increase in the fraction of those taking postdoctorals at the same institutions as their Ph.D?

We reemphasize that evidence of change is largely anecdotal, yet in at least one field, physics, the pervasiveness of the anecdotes is taken as revealed truth: the postdoctoral is being used as a haven when the new Ph.D cannot get suitable, more permanent employment; the postdoctoral is increasingly used as a means for changing fields; there is an accelerating trend for the best doctorates in physics to refuse a prestigious postdoctoral with its uncertain future to accept a staff position in research in a national laboratory or in industry; there is a shortage of first-rate postdoctorals in physics.

I will first review the salient facts about the postdoctoral institution which had its beginnings about 1920, making full use of that seminal document on postdoctoral education in the United States, *The Invisible University* published in 1969 by the National Academy of Sciences.[1] That study was carried out in the late 1960's under the direction of Richard B. Curtis. It was based on interviews and surveys of the postdoctorals (about 6500 were Ph.D's and 330 M.D.'s), the mentors of postdoctorals and the administrators at the institution which housed the postdoctorals. I will also make use of several parochial studies carried out since 1969. Lindsey Harmon of the Commission on Human Resources recently brought some of the I.U. data on postdoctorals up to date[2] using information from the Doctoral Record file of the NRC[3] as well as from the National Science Foundation's Graduate Science Education Surveys.[4] The American Institute of Physics carried out a comprehensive study of physics and astronomy in 1973 and summarized the results for postdoctorals in 1975.[5] In 1974, the Commission on Human Resources of the National Research Council completed a study of the postdoctoral traineeship and fellowship programs of the National Institute of General Medical Sciences.[6] That document describes very detailed examinations of some 8,700 MIGMS postdoctorals from 1958 through 1970, The 1976 *Report of Personnel Needs and Training of the Committee on a Study of National Needs for Biomedical and Behavioral Re-*

search Personnel contains a valuable summary of the postdoctoral situation in those fields.[7] Further demographic information of considerable depth and breadth should be available from the 1975 Survey of Doctorate Scientists and Engineers[8] carried out by the National Research Council, but the data is not yet available.

The accepted definition of the postdoctoral is that given in *The Invisible University*

"The postdoctoral is an appointment of a temporary nature at the postdoctoral level intended to offer an opportunity for continued education and experience in research, usually, though not necessarily, under the supervision of a senior mentor."

There is universal acceptance of this definition, yet considerable latitude in the title given the postdoctoral. Some are hired in a named fellowship or traineeship program. Many are hired under the title of research associate or research scientist. Others—with teaching obligations—are hired with the titles of instructor or lecturer. The different titles complicate the counting of postdoctorals, which is already difficult since postdoctorals are often hired directly by the faculty through research grants; some institutions do not know how many postdoctorals they have. For these reasons alone, one must expect and accept large uncertainties in the data from studies of the postdoctoral institution.

Paradoxically, despite the difficulty in finding and counting postdoctorals, its population consists of a remarkably homogeneous group with quite striking characteristics.

Characteristics of the Postdoctoral Institution in the 1960's

The postdoctoral position is temporary. Sixty percent of all postdoctorals in 1967 were within 2 years of their doctorate and only 20% of the postdoctorals were beyond 5 years.

The postdoctoral is concerned with research, the honing of research skills, the broadening of research experiences.

The ultimate goal of most of those who have taken postdoctorals has been a research career in academia (see figure 1). More than 70% of all postdoctorals in 1967 planned to take university positions; in some fields, such as astronomy (92%) and psychology (86%), the percentages were considerably higher.

The main purpose of postdoctoral programs was stated baldly in the report on *Postdoctoral Training in the Biomedical Sciences*

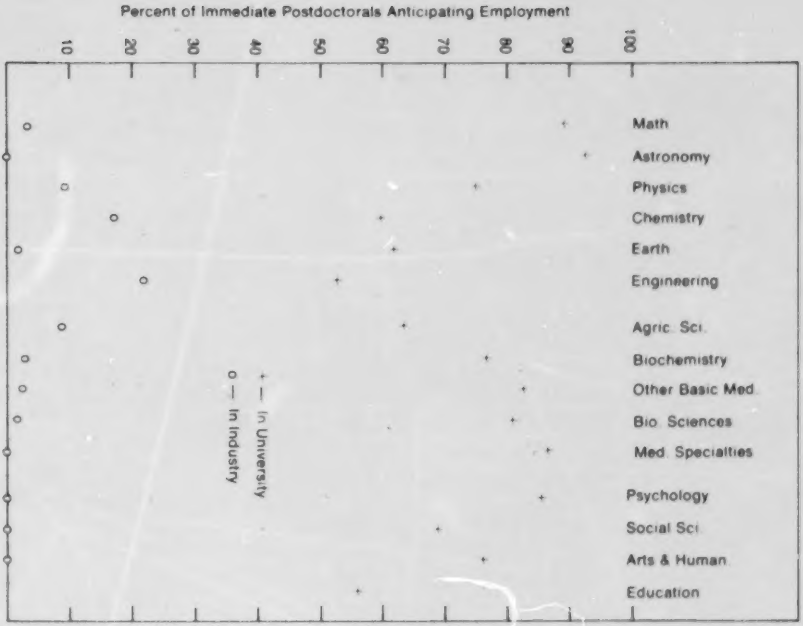
"Postdoctoral training in general, and training sponsored by the NIGMS in particular, is intended to prepare people to serve on the faculty of colleges and universities where research orientation is important."

The purposes of those taking and those awarding the postdoctoral matched the realities in the 1960s. As Richard Curtis wrote:

"The idea that it is not possible to get a faculty appointment in a major institution without a postdoctoral record is only a slight exaggeration in some fields."

The postdoctorals are important to the plans of Ph.D's in certain science fields, not in all fields. (see figure 2) The concentration is highest in physics, chemistry and the basic medical sciences; considerably lower—by about a factor of two—in earth sciences, engineering psychology and mathematics; prac-

Figure 1



tically non-existent in the social sciences (exclusive of psychology), humanities, arts and education.

The postdoctorals are present in sizeable numbers in select schools, not in all schools. One-half of all the National Research Council Postdoctoral Fellowships from 1919 through 1938 were carried out in only four institutions: Harvard, Princeton, Chicago and CIT. The distribution in the mid-1960s was similar; one-half of all postdoctorals were in 8% of all doctoral-granting departments. Thus, the postdoctoral was an important component of the population in the "distinguished research-oriented universities and made little impact in the population of the majority of universities."

A majority of the non-medical postdoctorals were foreign citizens (Figure 3). In 1967, of the 5,600 Ph.D postdoctorals serveyed in academic institutions in the United States only 47% were U.S. citizens, while 11% were foreign citizens with U.S. Ph.D's., and 42% were foreign citizens with foreign Ph.D.'s.

The postdoctoral institution grew together with the federal funding for research.

Overall then, we find that the postdoctoral population in 1967 was characteristically composed of young scientists (a majority were foreign citizens) concentrating on research in a small number of prestigious schools and in a small number of science fields.

Figure 2

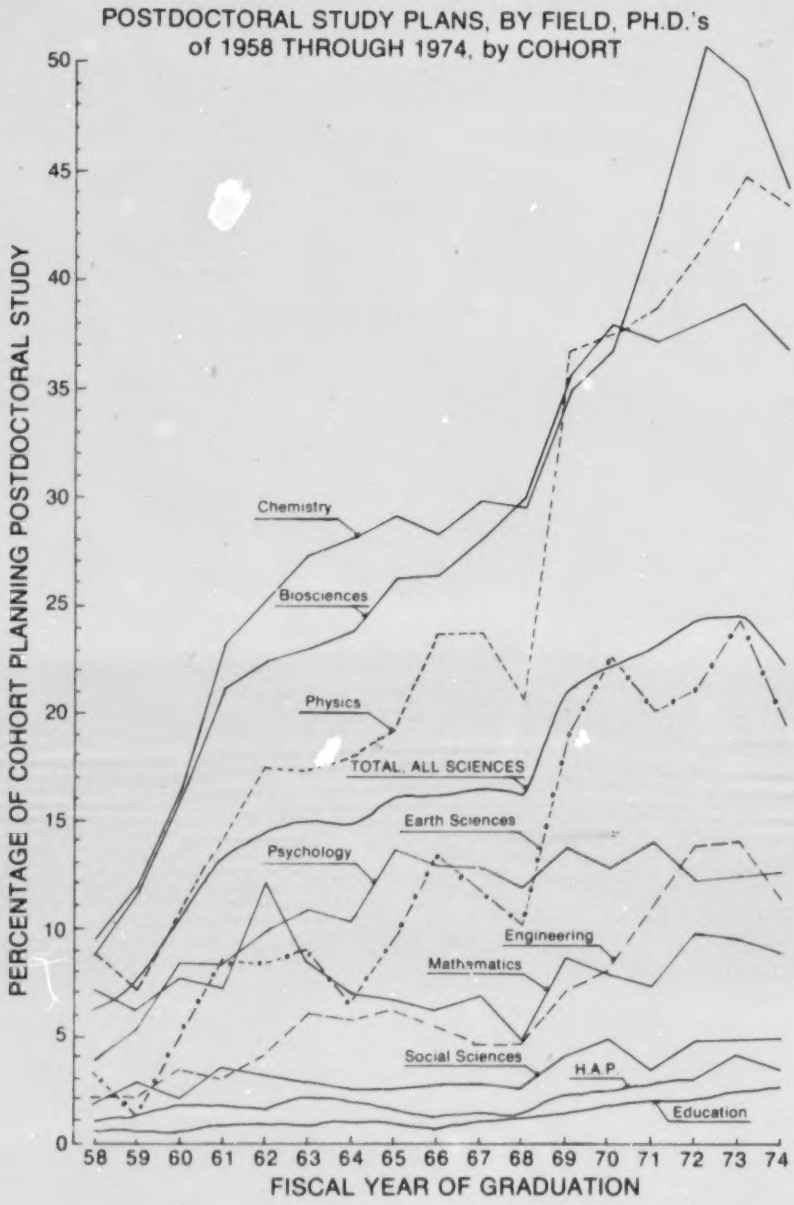
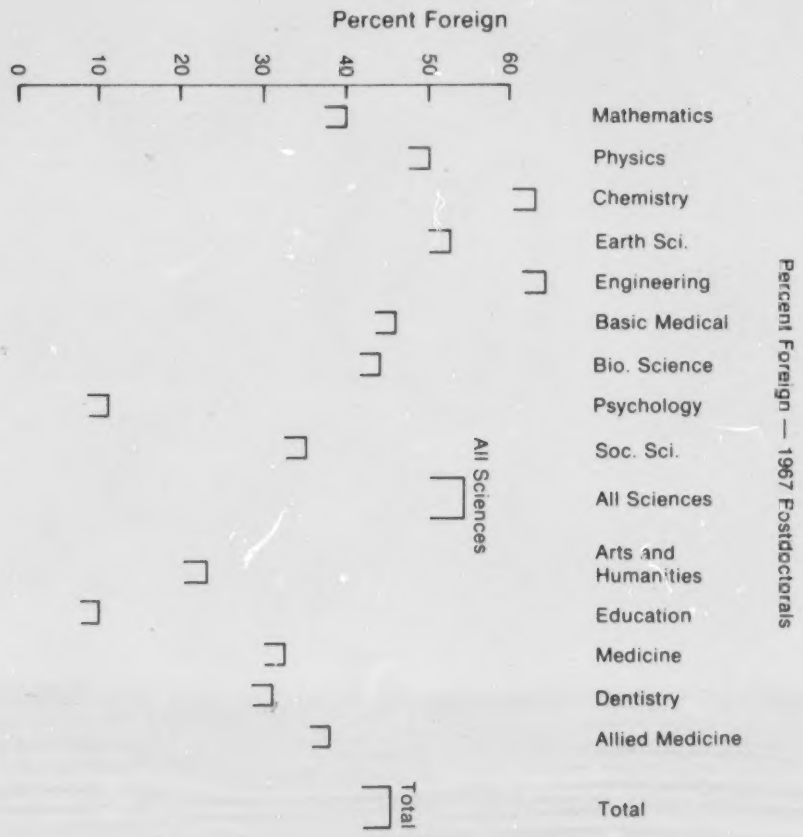

POSTDOCTORAL STUDY PLANS, BY FIELD, PH.D.'s
of 1958 THROUGH 1974, by COHORT
PERCENTAGE OF COHORT PLANNING POSTDOCTORAL STUDY
50
45
40
35
30
25
20
15
10
5
0
Chemistry
Biosciences
Physics
TOTAL, ALL SCIENCES
Earth Sciences
Psychology
Engineering
Mathematics
Social Sciences
H.A.P.
Education
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74
FISCAL YEAR OF GRADUATION

Figure 3



The Invisible University since 1967

The data of References 2-7 extend some of the trends documented in *The Invisible University*. Figure 2 shows that the percentage of those new Ph.D.'s in physics, chemistry and the basic medical sciences who expected to take postdoctorals continued to increase in the 1970's. Figure 4, shows the 1975 data as a function of field. Table 1 shows the postdoctoral plans of Ph.D.'s in the life sciences. In 1975, 70.8% of those in basic medical sciences expected to take postdoctoral positions.

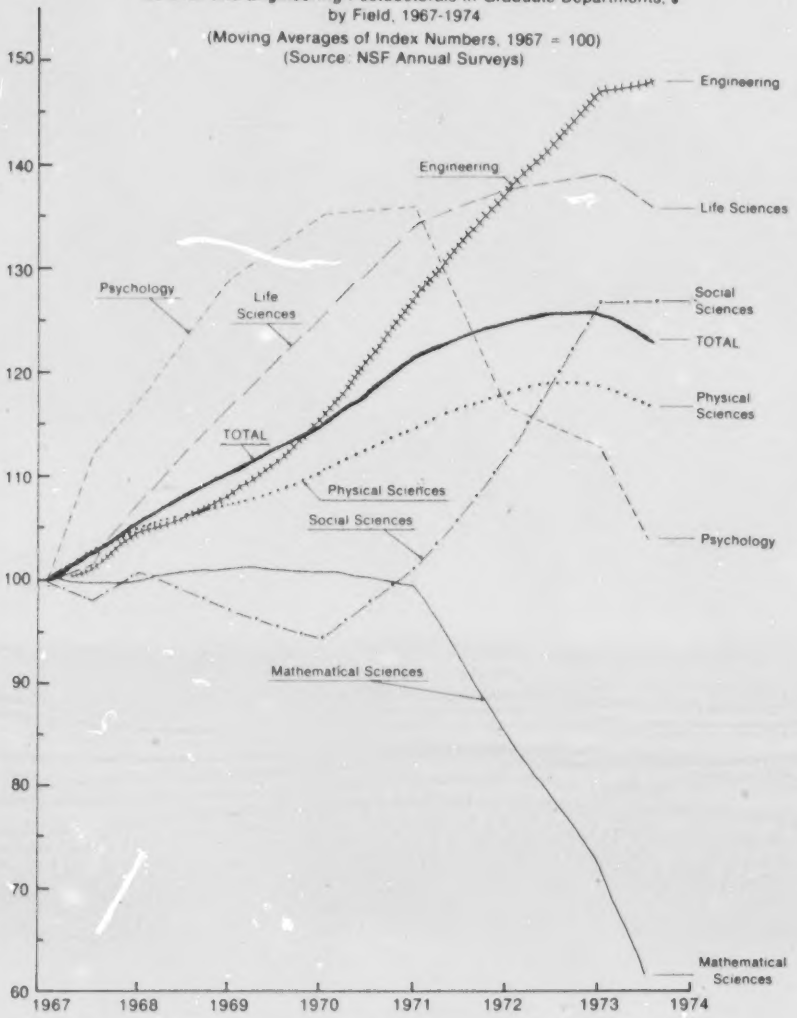
Though the percentages of Ph.D.'s who go on to postdoctorals has been increasing, the absolute numbers taking postdoctorals has been increasing, the absolute numbers taking postdoctorals has been nearly constant, Table 2. There has been little change in the number of postdoctorals from graduating classes in mathematics, physics, chemistry, engineering and the life sciences

Figure 4

Science and Engineering Postdoctorals in Graduate Departments, by Field, 1967-1974

(Moving Averages of Index Numbers, 1967 = 100)

(Source: NSF Annual Surveys)

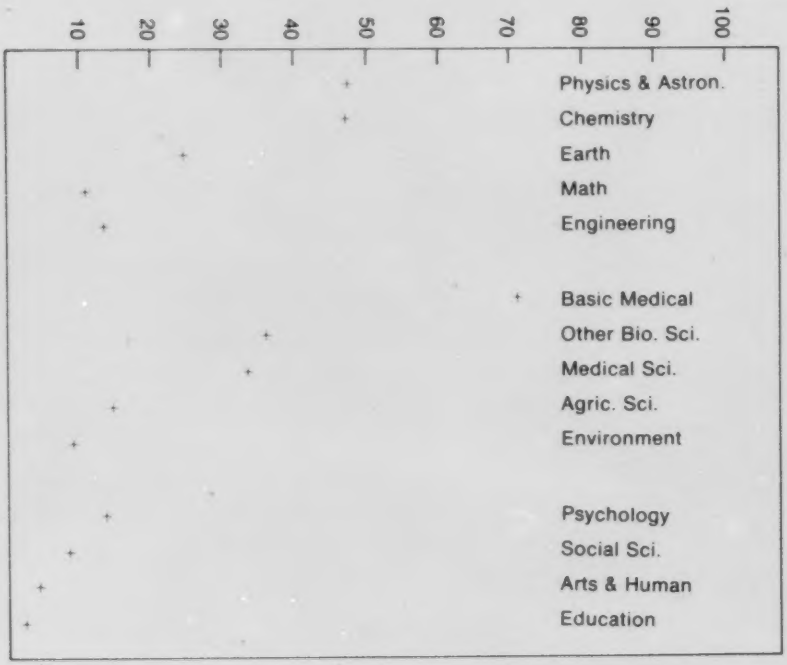


from 1971 through 1975. The relative changes in the total postdoctoral population in graduate departments is given in Figure 5. The stagnation in the postdoctoral population in the life and physical sciences correlates with the near level funding (in constant dollars) for research in these fields.

The most obvious conclusion from these data is that the postdoctoral institution is prospering. While there has been a stagnation in the growth during the

Figure 5

Percent of PhDs taking Immediate Postdoctoral — 1975



past four to five years, the number of postdoctorals in 1975 was almost 30% higher than in 1967.

Figure 6 gives the most recent five-year trends in postgraduate plans and the actual postdoctoral populations in graduate departments for physics, chemistry and the life sciences. The DRF information is obtained at the time the degree is awarded so that expectations are a fair measure of first-year postdoctoral populations. And postdoctoral populations in graduate departments are probably fair fractions of total postdoctoral populations. If both measures are accepted, two conclusions can be drawn from the figure: First, the average time spent as a postdoctoral is between two and three years. Second, since there is little divergence in the corresponding sets of data, there does not appear to be, from this rough measure, a significant holding pattern developing in these fields.

The postdoctoral institution is of greatest significance to the chemistry, physics and basic medical science fields and plays little role in the careers of the overwhelming majority of those in mathematics, social sciences and psy-

TABLE I

Percent of Ph.D.'s in Life Sciences who Plan to Take Postdoctorals (NRC Data)

	1972	1973	1974	1975
Basic Medical Science[1]	60.6	62.2	63 3	70.8
Other Bioscience[2]	30.4	31.2	28.5	35.8
Medical Science[3]	34.5	29.5	30.8	33.5
Agricultural Science	13.4	16.8	14.7	14.5
Environmental Science	10.1	11.8	9.6	8.7
Basic Life Science — Total	38.3	39.0	38.3	43.1

[1]Biochemistry, biophysics, anatomy, cytology, embryology, immunology, microbiology, bacteriology, animal physiology, molecular biology
[2]Biometrics, botany, ecology, hydrobiology, plant physiology, zoology, genetics, entomology
[3]Medicine & surgery, public health, veterinary medicine, hospital administration, parisitology, pathology, pharmacology, pharmacy

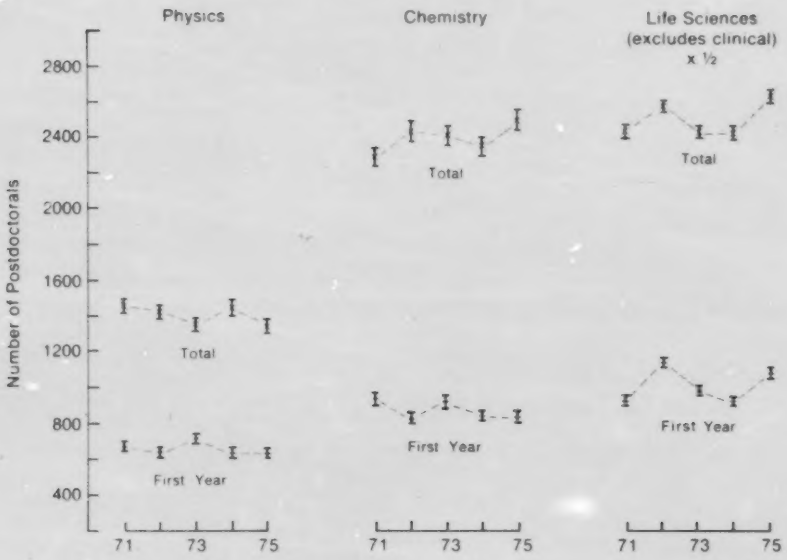
TABLE II

Actual Number Who Expected to Take Postdoctoral on Getting Ph.D. – NRC Data

	Math	Phys + Ast	Chem	Engin	Life Sciences	Psych	Science Total	Total
1967*	52	303	506	111	839	147	–	2131
1971**	88	671	949	384	1869	294	4470	4734
1972	160	639	828	–	2302	271	5025	4125
1973	115	714	912	471	1976	303	4810	5261
1974	110	616	847	383	1874	389	4466	4917
1975	118	612	828	387	2165	379	4781	5200

*Postdoctoral defined as postdoctoral fellowship or traineeship
**Postdoctoral includes fellowship, traineeship, research associateship, other

Figure 6
TOTAL AND FIRST YEAR POSTDOCTORALS, 1971-75



chology. There is a seeming paradox here which needs emphasis. The postdoctoral is taken to be a red carpet on the royal road to academia, yet it is very vital in chemistry where the majority of the Ph.D.'s work in industry and of little importance in many fields (e.g. mathematics) where the majority of the Ph.D.'s work in academia. Clearly, the postdoctoral grew because of special needs having more to do with the nature of the research in the physics, chemistry and basic medical fields than with research or academia per se. Yet if we are to understand what the future may have in store for the postdoctoral institution we must understand these reasons. And we must accept the importance of the postdoctorals to the conduct of research in these fields.

The postdoctoral population in physics, chemistry and the basic medical sciences conducts a significant portion of the total research in academia in those fields; my own estimate is that postdoctorals contribute roughly 30% of the total effort. Since to my knowledge there has been no explicit estimate of the distribution of the research load among the components of academia, I include a first estimate here, for it is my view that the need for postdoctorals to carry out research in academia is the driving force sustaining the postdoctoral population.

The data from which an estimate can be made of the importance of postdoctorals to research are given in Table III. For eight fields we give the total faculty in 1973-74.[9] The total number of postdoctorals in doctoral departments, Reference 4; the total number of Ph.D.'s granted in 1974-75, Reference 3. We

TABLE III

	"Total" Ph.D. Faculty[1] 1973-74 Number of Depts	Total Faculty	"Total" Postdocs. in Doctoral Depts[2]	Full-time 1st Yr Grad. Enroll. Doctoral Depts-Fall 1975[3]	Ph.D.'s Granted 1974-75[4]
Biochemistry	112	1516	1322	943	620
Chemistry	129	3056	2455	3352	1762
Physics	126	3356	1311	2087	1233
Microbiology	107	1209	678	1059	364
Zoology	41	914	185	867	271
Mathematics	110	4064	165	4171	1149
Elec Engin	91	2082	167	3359	536
Chem Engin	82	891	189	1255	370

[1]Reference 9

[2]Reference 4, p. 104

[3]Reference 4, p. 160

[4]Reference 3

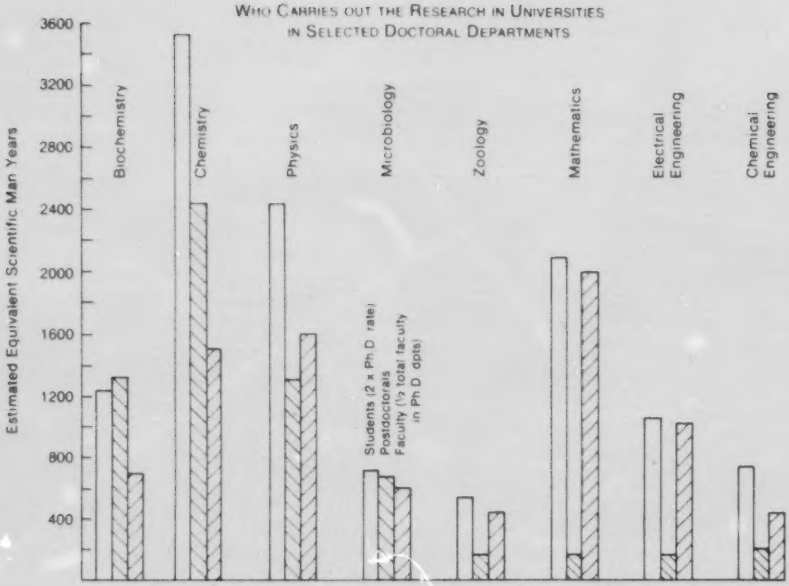
thus have a measure of the three components who carry out the major share of the research in these fields in academia. (The data for the three components are collected from different sources, do not cover the same schools, and are not really commensurate; but they will do for a first look.)

To assess the productivity distribution we have used the following prescription: postdoctorals are counted as full scientific man year equivalents. The scientific man year equivalent for the student body is taken to be twice the number of Ph.D.'s granted per year. The full time scientific man years contributed by faculty are taken to be one-half the total faculty size. (More than 90% of these faculties spend at least 20% of their time on research). Using this prescription, we compare the scientific man years for the eight fields, Figure 7. No matter that the faculty contribution may be over-estimated and the student contribution under-estimated, there can be no doubt that in the fields where a substantial number of doctorates take postdoctoral positions the postdoctorals play a crucial role in the conduct of the research.

It is my belief that the critical importance of the postdoctoral to the conduct of research is what has sustained that population in the face of declining academic opportunities, and will sustain the non-faculty research population in academe in the future. Whether this research population will be composed of postdoctorals as we have known them for the past fifty years—an elite group

Figure 7

WHO CARRIES OUT THE RESEARCH IN UNIVERSITIES IN SELECTED DOCTORAL DEPARTMENTS



who desire and expect to be the future professors of science in research-oriented universities—is, however, open to much doubt.

Are there non-trivial statements which can be made about the future of the postdoctoral institution in the coming years. I believe that there are.

First. The mismatch between Ph.D. production and faculty needs, so brilliantly argued and documented by Cartter,[10] will surely continue for the next five years and could well be greater in the 1980's than in the 1970's. My own five-year projections for physics, chemistry and biochemistry are for faculty needs in research-oriented departments to be about 10% of the Ph.D. production in these years. (I made use of the faculty growth expected by the departments themselves.)[11] These projections are in line with estimates made by the NSF[12] and Cartter (Reference 10). Why then should more than 40% of the Ph.D.'s in these fields take postdoctorals. The most reasonable explanation is that postdoctoral positions are available while competitive alternatives are not. I believe that the taking of postdoctorals for the purpose of preparing for an academic career is no longer the primary motivation for most.

Second. The extent and speed of change in the postdoctoral institution will depend on the non-academia employment opportunities. If the non-academic employment market continues tight, then I would expect the quality of the postdoctorals to deteriorate considerably. The best students will get excellent offers from the non-academic sector even in the tightest of times. These students are unlikely to take a postdoctoral of uncertain future if an excellent alternative is available. Of course, one alternative is a direct academic ap-

pointment such as an assistant professorship in a prestigious school. Another is a research position in academe with salary and prospects to match outside offers. The bargaining for the very best will be more intense than ever. The less promising students, those who do not get the strongest offers from the non-academic sector, will accept a postdoctoral as the best alternative given the options available, with the hope that a better offer will turn up before the postdoctoral is ended.

Third. The lack of long-term faculty opportunities coupled with the need to carry out a body of research will force academia to expand its research staff and lengthen the research contracts to attract the strongest young scientists. The postdoctoral (apart from prestigious postdoctoral fellowships) will become less temporary and higher paying.

But these are conjectures. All we can be reasonably sure of is that past motivations for taking postdoctorals are no longer particularly pertinent. What will happen is unclear; we have too little information. It is my view that the postdoctoral institution will change, slowly and adiabatically, but change nonetheless. We must understand these changes if we are to maintain the quality of our research staff and the infusion of youth into academia.

FIGURES

1. Percentages of immediate postdoctorals anticipating employment in academia and in business. From Reference 1.
2. Percentage of new Ph.D.'s anticipating postdoctoral appointments. From Reference 2.
3. Percentage of postdoctorals in the 1967 survey who were foreign citizens. (Reference 1, p. 209).
4. Science and engineering postdoctorals in graduate departments, by field, 1967-74. From Reference 2.
5. Percentage of the 1975 doctorals who anticipated postdoctoral appointments. From Reference 3.
6. Postdoctorals in graduate departments versus anticipated plans of new Ph.D.'s to take postdoctorals, 1971 thru 1975.
7. An estimate of the contributions of different groups to academic research in selected fields.

REFERENCES

1. *The Invisible University*, Postdoctoral Education in the United States, Richard B. Curtis, Study Director. National Academy of Sciences, 1969.
2. Lindsey R. Harmon, *Update on Postdoctorals.* National Research Council, unpublished report, June 18, 1975.
3. *Survey of Earned Doctorates*, Summary reports published annually by the National Research Council.
4. *Graduate Science Education: Student Support and Postdoctorals.* Published annually by the National Science Foundation. Recent publications are NSF 76-313 and NSF 76-318.

5. *Post-Doctoral Positions in Physics and Astronomy*, by Beverly F. Porter. Physics Manpower Report, American Institute of Physics R-270, October 1975.
6. *Postdoctoral Training in the Biomedical Sciences*, L.O. Jacobson, Chairman of the Advisory Committee. National Academy of Sciences, December 1974.
7. *Personnel Needs and Training for Biomedical and Behavioral Research*, 1976 Report, Robert J. Glaser, Chairman. National Research Council Commission on Human Resources Report published by the National Academy of Sciences, 1976.
8. *Doctoral Scientists and Engineers in the United States, 1975 Survey*. Commission on Human Resources, National Research Council.
9. *Young and Senior Science and Engineering Faculty, 1974*, National Science Foundation, 75-302.
10. Allan M. Cartter, *Ph.D.'s and the Academic Labor Market*, McGraw-Hill Book Company, 1976.
11. *Young Doctorate Faculty in Selected Science and Engineering Departments, 1975 to 1980*, F.J. Atelsek and I.L. Gomberg, Higher Education Panel Report, Number 30, American Council on Education, August 1976.
12. *Projections of Science and Engineering Doctorate Supply and Utilization, 1980 and 1985*. National Science Foundation, NSF-75-301.

Concurrent Workshops

Friday, December 10, 1976, 10:45 a.m.-12:00 noon

SOME IMPLICATIONS OF THE NEW CONCEPT OF CAMPUS

Chairman: D.C. Spriestersbach, *University of Iowa*
Elmer F. Baumer, *The Ohio State University*
Roger G. Clark, *University of Illinois-Urbana*
C.J. Nyman, *Washington State University*

D.C. Spriestersbach

In general American colleges and universities began with a single campus and with instruction essentially offered only on that campus. Certainly, this was the model for early graduate colleges. Gradually, however, colleges and universities began to offer courses off-campus, generally through an extension division with either a separate "extension" faculty or as an "add-on" to the load of the regular faculty.

During the late 1940's and 50's, in order to meet the heavy demand of students, especially at undergraduate levels, many universities developed branch campuses. The branches generally had a faculty separate from that of the main campus, and, over time, developed a measure of quasiautonomy. Some even became equally separate in governance from the central campus. In some instances, graduate work was offered at the branches and graduate degrees, mainly at the master's level, were awarded by them. By then the phrase "the campus" was becoming unclear and often it was necessary to attach a modifying name to the campus so that one referred to "the such-and-such campus".

By the 1960's the movement to establish branch campuses which replicated in microcosm the home campus diminished. Instead a trend developed to incorporate branches, as well as state colleges and universities, into one state university system, and the age of the hyphen began. Universities were identified as the University of so and so state—such and such a location.

Now, the model is once again changing—especially with regard to graduate education. Pressures at the undergraduate level to form new university campuses have been blunted by the growth of community colleges, but at the graduate level those pressures remain. To meet them, a movement has begun to transplant entire graduate programs or substantial portions of programs to locations away from the main campus. We now hear of "Graduate Centers"—the center being a modest facility where one or several graduate programs are offered to a population in a nearby geographical area. Usually the programs offered are applied or professional in nature and involve a practicum requirement which is fulfilled away from the main campus. The center may have a permanent faculty member or two assigned to it but, in general, regular faculty commute to the center to offer the courses. Adjunct faculty are often

appointed to supervise practicum work. In fact, the concept of a graduate faculty is sometimes broadened by the acceptance of certain faculty from other universities as graduate faculty members at the parent school.

Thus, the notions of "campus" and "faculty" are both undergoing change. For graduate education, the "campus" may well consist of the main campus plus a scattering of graduate "centers" where certain programs are offered either in toto or nearly so. Sometimes the "centers" include segments of curriculum and faculty from other institutions. The "faculty" now may consist of the central core faculty, adjunct faculty from the professions and industry, and certain faculty from other institutions who are screened and judged to be suitable for offering graduate instruction by the central core graduate college.

Even as this model is being adopted, a new one is materializing, further changing the concept of the campus. In contrast to the model I have just mentioned, where a given university extends itself, this new development involves essentially autonomous institutions cooperating to offer complete graduate programs jointly. Such cooperative ventures are sometimes fostered by a consortium arrangement or by conference ties, or simply by location with a single state. But the essential feature is that course work taken at any one of the cooperating institutions either directly replicates or substitutes for work at another. Course equivalences are established with courses x, y, z at institution A being equivalent for degree purposes with courses r, s t at institution B. Often a student can earn the degree at any one of several or at any one of *all* the cooperating institutions. In this model, the focus is on the degree program and the "campus" consists of the several autonomous campuses of the cooperating institutions plus, perhaps, various centers under either single or joint control. The concept of faculty is now broadened to include the facilities of all the participating schools. Although most programs in this model are at the master's level, there are examples at the doctoral level as well.

There are variations in the components of each of the models of instructional units separated from the main campus. Frequently there are different faculties, different facilities and different students associated with particular models. And it seems fair to say that quality considerations have been specific to given models. There has not been uniformity in the standards used in evaluating graduate programs in the several settings in which they are offered. And it has seemed to many of us that the time has come to eliminate this lack of uniformity.

One, if not the, major responsibility we have as graduate deans is that of quality control of the programs offered by our institutions. To achieve quality control means that we limit variation in specified dimensions of programs. To do that we must be able to identify the relevant variables and specify the variances in them that we are willing to accept in certifying that the program meets acceptable standards. It seems clear that the type of model used in providing the instruction should not influence our quality control procedures and standards.

This workshop, then, has been organized to consider some of the quality control implications in the new concept of "campus". First, I would like to call on Roger Clark, Associate Dean of the Graduate College at the University of Illinois at Urbana, who will present a summary of the efforts to date of the CIC

graduate deans to specify what variables should be assessed in a graduate program wherever and under whatever arrangements it is offered.

Next I would like to call on Elmer Baumer, Associate Dean of the Graduate School of The Ohio State University who will describe a model in which several Ohio universities have developed a common core of courses with individual universities building their own specialization on the common core. He will also comment on entrance and exit criteria that are being used in some of these programs.

Finally I would like to call on Jack Nyman, Dean of the Graduate School, Washington State University, to discuss the quality control issues involved in the operation of the Joint Center for Graduate Study at Richland, Washington.

STANDARDS IN THE HANDS OF AN ARTFUL DEAN

Roger G. Clark

When Dean Spriestersbach told me some time ago that he wanted me to talk with you about quality in graduate education and the basic critical variables by which to measure it, I recognized that he was asking me to preach to the converted. Rather than attempt to disguise my mission, I have cast my remarks unabashedly in the form of a sermon which will, I hope, offend neither any member of the audience nor the President-elect.

I take my text for today's sermon not from the Holy Scriptures but from a humanly inspired—and therefore fallible—document devised and promulgated by a synod of graduate deans at the Diet of Columbus, Ohio, in the late spring of 1976. It is entitled "Standards for Graduate Education in the CIC: A Preliminary Statement by the Graduate Deans."

First, a few words explaining the provenance of the text: At the 1975 annual meeting of the CIC graduate deans,* considerable discussion was given to the issues arising out of off-campus or no-campus graduate programs, with an emphasis on the low quality of what the other fellow was doing. The result was (inevitably) the appointment of a committee, chaired by Wade Ellis of the University of Michigan, to examine the implications of non-traditional post-baccalaureate study.

All ten of our institutions are in some stage or other of implementing non-traditional graduate programs of some sort. Furthermore, we all have latent or active doubts about the quality of some of our traditional programs. Obviously, we would be in a poor position to criticize the programs of other institutions (or pseudo-institutions) if we could not systematically criticize ourselves by a common set of standards. The committee decided at the outset that our first concern should be with our own activities and that we should begin by making explicit the minimum standards we expect all graduate programs (including our own) to meet or exceed.

---

*The CIC is the Committee on Institutional Cooperation. The member schools are the Big 10 and the University of Chicago.

Therefore, it was proposed that the graduate deans develop a statement comprising three parts: (1) a delineation of the minimum standards of quality which should be met by all of the activities which we carry out under the name of graduate education in the CIC, (2) a definition of terms—particularly of those related to the newer forms of graduate education, and (3) an extended discussion relating the standards to the non-traditional kinds of programs which our universities and others are embarking upon. This "preliminary statement" is the first part of the projected longer document. It has been approved by the ten graduate deans for dissemination through all the land.

The statement identifies five critical variables in graduate education, whether that education be traditional or non-traditional, on-campus or off-campus. Now, any member of this audience, given two or three minutes, could guess what they are: program design and expectations, faculty, students, facilities, and administration. I shall attempt to describe briefly what we have to say about each of them. Some—perhaps all—may seem so basic as to be not worth citing, but the essential thought underlying this set of minimum standards is that quality in graduate education is too vital a matter to all of us for it to be allowed to rest on a set of unspoken assumptions.

Programs Four general standards are identified as applicable to both professional and academic post-baccalaureate degrees.

1. "The content of courses and other required or optional experiences will usually build . . . on the knowledge a capable student acquires during the undergraduate years, and should develop, both in depth and breadth, a more sophisticated understanding of a coherent body of knowledge."
2. "Programs should provide close and frequent contact between students and faculty, both in and out of class. Out-of-class contacts should provide academic guidance and counselling, monitoring of degree progress, and participation of both students and faculty in professional activities."

I might comment on this standard that it has, in our first formal evaluation of off-campus graduate courses at the University of Illinois, proven to be the most difficult standard to meet. Our records system is not yet geared up to the point where it can provide departments with necessary support for effective monitoring of degree progress. Moreover, the faculty are simply not available for counselling except by telephone and on the days when they travel to their classes, and the adult-student with a full-time job who is also taking one or more graduate courses has very little time to engage in additional professional activities unless they relate directly to his or her job.

3. "The program should be of sufficient duration to foster reflection and absorption, and independent thought."
4. "Provision should exist for regular, critical evaluation of student performance on both a formal and an informal basis."

This standard is also difficult to meet in off-campus settings, as students and faculty often have little opportunity for informal exchanges.

Additional minimum expectations are delineated in this section for M.S. and M.A. degrees and for Ph.D. programs in terms of length of time to degree and the kinds of understanding or mastery of subject matter, bibliography, theory, and methodology to be expected from master's or doctoral students. A similar

section for professional degree programs, such as the Master of Education and Master of Social Work, was completed too late for inclusion in the document at this time. We plan to include that section in the statement's final version, when it reaches its perfected mystical state, having three parts in one.

Faculty The most important variable in graduate education, or at least the second most important variable, is the quality of the faculty involved in the graduate program, for we believe that a high-quality faculty simply will not tolerate a low-quality program. In this connection, the most important minimum expectation of a graduate faculty is that they "should be active in teaching, research, and professional activities and present evidence of teaching competence and scholarly productivity." This standard is based on the belief that faculty members should be actively engaged in those things they are teaching their students to do, and that the best and most thorough understanding of the knowledge encompassed by a field of study can only come through participation in the creation or application at a high professional level of that knowledge.

Students "No matter how distinguished," to quote again from our text, "how well-published, how pedagogically skilled a faculty may be, the program they offer can be no better than the students in it." Because of the interactive nature of graduate study in its most vital forms, neither a graduate program nor a graduate faculty is likely to be of high quality unless the students are of similarly high quality. The statement therefore points up very strongly the necessity for selecting and admitting "applicants who show the greatest potential, not merely for surviving in the program, but for providing intellectual leadership and stimulation." The appropriate measures of student quality will, of course, differ from field to field, and the usual tools for admission decisions—undergraduate grades, standardized tests, and so forth—may not always do the job. But whatever the measures used, they should be well-defined and articulated, and subjected to continuing scrutiny and validation. It is, after all, entirely too easy to lose one's way and find oneself in the position of our sociology faculty a few years ago. They woke up one morning with the sudden realization that they—of all departments—had no idea of what student characteristics were predictors of success in their program. So, in the manner of true sociologists, they analyzed every known characteristic of their students past and present. After multiple regressions (and one or two digressions), they found that the only consistent positive correlative with success in the program was failure to attend church regularly. There is a lesson in that story somewhere, but I'm not sure what it is.

Facilities Obviously one needs facilities to operate a graduate program worthy of the name. The days are long gone when the only facility needed was a log to put Mark Hopkins on one end of. One needs libraries, studios, classrooms, computers, technical assistance, and extensive equipment. But what facilities are necessary can be defined only by specialists in each field, and the CIC statement makes no effort to specify minima all the way from accountancy to zoology.

Administration The fifth critical variable in graduate education is the central administrative structure. About all our text says about administration is that there ought to be some. (You couldn't really expect a pontification of

deans—I believe that is the correct venereal term—to recommend that their positions be eliminated.) The most important function of that graduate administration is "to provide mechanisms through which graduate faculty participate in the formulation of policies and in other supra-departmental decision-making regarding graduate programs—to assure, in fact, that the important decisions affecting the quality of graduate education are made by the faculty themselves." And an administration should be judged on its success in achieving this goal.

We have had, in this brief homiletical exercise, the division and exegesis of the text, and the doctrines drawn therefrom. We must draw a moral as well. I draw it thus: whether the graduate education whereof we speak be of the traditional, on-campus, full-time, total immersion variety or of one of the non-traditional, part-time varieties which seeks academic or professional salvation through repeated sprinklings, the crux of its quality lies at the intersection of the faculty and the students. If we can assure that these two most critical variables are of high quality, then surely (to end on a Barthian note) all generations shall cross passed. (That's John, not Karl.)

E. F. Baumer

In recent years we have been forced to redirect our thinking about the way in which some post-baccalaureate education is being made available to the general public. This has been brought about mainly by demands of part-time, professionally-oriented students who constitute the adult education market. One such major group is school teachers whose advancement in salary and position is dependent largely on post-baccalaureate course work. Other groups include members of the business community, social agency personnel and public administrators. Meeting the demands of such groups has placed significant strains on education concepts such as residency requirements, modes of course delivery and entrance and exit requirements.

The scope of these problems is most clearly evident in the field of Education. The goals and objectives of most teachers seeking additional academic work are not closely related to residence on campus. Such instruction, including use of library facilities, could be offered at a variety of locations on or off campus without significant loss of quality.

It is also a fact that a large number of colleges and universities are offering courses in an attempt to meet these teacher demands and that many such courses are being offered in local schools. Competitive pressure becomes a factor when two or three institutions offer similar courses in the same general area. This problem is further complicated by the fact that teachers in any one school are pursuing advanced degrees at several different institutions.

To partially cope with these problems a committee of faculty and administrators in the college of Education set out to develop a professional degree program that might be adopted by all institutions offering advanced educational instruction in the state. The first objective was to identify a core course program. Students could then complete the remainder of the program with their own specializations. The expected result was a more recognizable pro-

gram of uniform quality which would encourage some interchange of faculty and courses among institutions and eliminate the need for each institution to provide instructional opportunities in all specializations. Such an approach would reduce the need for transferring credit which has plagued school teachers for years. With an agreement on the make-up of the core and the level of instruction, instant credit could be provided by all cooperating institutions.

Other facets of traditional graduate programs that need review are the entrance and exit criteria. A review of these criteria as they apply to professionally-oriented degrees, especially advanced degrees for professional school teachers, will exemplify the problem. Should such advanced work be available only to those with undergraduate grade point averages and GRE scores that meet minimums established for research-oriented programs? Is it reasonable and practical to provide advanced work for only the most able teachers? Those rejected from such advanced courses would then secure advanced credits from another institution because the system in which they seek advancement requires it. This need explains why there is a market for so many questionable, low quality graduate programs. It seems that if an institution offers advanced work in the general area of Education, it will have to be made available to all teachers.

Exit criteria also need some redirection if they are expected to protect the integrity of professional master's degrees. Holders of professional degrees such as lawyers and doctors have been required to pass examinations that guarantee an understanding of basic practices of their professions. Similarly, objective examinations will have to be developed that separate the qualified teacher or practioner from the unqualified.

During the past academic year the Graduate Council has been discussing various proposals for changes in rules of the Graduate School to better meet the needs of professional master's degrees. At the last meeting of the year a set of guidelines applicable to professional master's degrees was approved. This is but a first step in meeting the rapidly expanding adult education market, hopefully without doing damage to the traditional research-oriented programs.

MAINTENANCE OF QUALITY IN AN OFF-CAMPUS JOINT CENTER FOR GRADUATE STUDY (RICHLAND)

C.J. Nyman

When Dean Spiestersbach asked me to present my views on the maintenance of quality in joint-off-campus graduate-level enterprises, I reminded him that I had discussed certain aspects of the Joint Center for Graduate Study before a session of the 1976 Western Association of Graduate Schools meeting. If any of you were present then, I hope you will bear with me.

Introduction

The Richand-Pasco-Kennewick area of Washington, since the early 1940's, has been the site of large nuclear-related industries. Approximately 100,000 people now reside in this tri-cities area where opportunities for postsecondary education are very limited. The distance to the nearest university offering graduate-level education is 140 miles. To meet partially the need for education at the postsecondary level, the Joint Center for Graduate Study (JCGS) was organized, and later the State of Washington established the two-year Columbia Basin Community College.

The Center is sponsored by three Northwest universities: Oregon State University, the University of Washington, and Washington State University. The original emphasis was primarily on nuclear engineering and closely-related disciplines and on business administration. In 1969, graduate study in the field of education was added.

Administration

The JCGS is governed by an administrative board composed of two vice presidents from each of the two Washington universities, one representative from the Energy Research and Development Administration, and the Dean of the JCGS. The basic administrative policies and procedures under which the Center operates, as well as all fiscal matters, are determined by the board.

An academic council, composed of the deans of the participating colleges (at the present there are three from each Washington institution and two from Oregon State), the deans of the three graduate schools, the directors of the three continuing education units, and the dean of the JCGS, provides the coordination and planning of the academic program. The purposes of the academic council are 1) to provide recommendations to the administrative board on programs to be instituted, programs to be continued and programs to be terminated or revised, and 2) to establish policies and procedures under which the academic programs are offered.

The Academic Programs

The academic programs offered at the JCGS are each sponsored by a single department of one of the participating institutions. This sponsorship was undertaken with the understanding that the program would be operated as an integral part of the sponsoring department. For example, the program in material science is sponsored by the department of material science and engineering at Washington State University. The courses which are approved for Richland are identical to the courses which are offered on campus; such courses are approved both by the department and by the university senate. Instructors are selected by the chairman of the department in consultation with the dean of the JCGS. The appointments of the instructors are initiated by the chairman of the department, approved by the dean of the JCGS and the dean of the college,

and finally, by the dean of the graduate school of the university. The letter of appointment is then written by the chairman of the department and dean of the JCGS.

The three universities have agreed to accept and have made provisions for entering on their transcripts courses that are taught by an approved program at the JCGS. For example, Oregon State University has the responsibility for teaching the courses in mechanical engineering. Students who are enrolled in the chemical engineering program at the University of Washington are able to use the mechanical engineering courses in their programs as if the courses were University of Washington courses. There is complete reciprocity in acceptance of these courses by the three universities.

At the present time, Oregon State University sponsors the program of studies in mechanical engineering leading to the master's degree. The University of Washington sponsors programs in nuclear engineering, chemical engineering, and business administration which lead to the master's degree. Washington State University sponsors programs in computer science, electrical engineering, material science, biology, and education which lead to the master's degree. In addition, Washington State University also sponsors service courses in mathematics, physics, and chemistry. These service programs are handled in much the same way as the programs leading to degrees with the difference being simply insufficient justification to warrant offering a spectrum of courses sufficient to allow students to complete a master's degree at the JCGS.

For students in the sponsored master's degree programs, the residency requirements have been reduced substantially. Students may petition the graduate studies committee or graduate council of their respective university to be excused from the residency requirement of the university.

In the disciplines of physics, chemistry, and mathematics, the students may use courses which are taken at the JCGS for graduate programs on campus. Students in these disciplines must satisfy a minimum residency requirement of one semester.

Students in Ph.D. programs may use the coursework offered by the JCGS on programs for a degree. However, the Universities require a period of residence on the campus to complete the Ph.D. programs.

The Washington State University thesis committees and major professor are appointed by the dean of the graduate school following the same procedures as for on-campus students. In all instances, members from the campus department participate as members of the thesis committees and all examinations are held on campus. Students may elect to do their research work in Richland or on campus.

Faculty

Basically, three types of faculty participate in the JCGS program. Local faculty members from the Richland area are elected to the graduate faculty by the same standards that are used for faculty on campus. These local faculty are part-time and, for the most part, are employed in the laboratories of the En-

ergy Research and Development Administration (ERDA) contractors, and a few other technical industries in the area. The quality of the persons available is quite comparable to that of the university faculty and these individuals have made excellent contributions as instructors and as thesis advisors.

A second group of faculty are full-time employees selected and appointed through the sponsoring department and university. These individuals are in residence at the JCGS on a full-time basis. At least one full-time faculty member is appointed in each sponsored program.

A third group is comprised of regular university personnel who commute to the JCGS to offer courses.

Maintenance of Quality

The basic philosophy which Washington State University has had as it has gone into this operation is that the quality of the offerings to the students shall be the same as on the home campus. I believe Oregon State University and the University of Washington also have tried to insure such quality.

This university believes that the main issues in insuring quality of off-campus programs are the following:

It is necessary that the program be integrated with the normal activities of the campus department. Off-campus faculty and students must visit the department, present seminars, be acquainted with the department and university. Campus faculty, particularly the chairperson, must visit the off-campus site and be acquainted with local faculty and their problems.

The criteria for selection of faculty must be under the control of the department and be the same as for campus units. The normal campus appointment procedures including the approvals of the chairperson of the department, the deans of the Graduate School and the College should be required. The same professional standards for reappointment and for changes in rank must prevail.

The students must also observe the same requirements and procedures as for campus-based students. They should be admitted by the dean of the graduate school on the recommendation of the department. They should maintain the same academic standards and be subject to the same departmental scrutiny as on-campus students.

The academic program to be offered off campus must be under the administrative control of department faculty as is the on-campus program.

INTERNATIONAL STUDENTS IN GRADUATE EDUCATION

Chairman: Robert M. Johnson, *Florida State University*
Stan Berry, *Washington State University*
Andrew J. Hein, *University of Minnesota*
Hugh M. Jenkins, *National Association for Foreign Student Affairs*

Stan Berry

The question of whether foreign students should be charged the full cost of their education and whether or not anything less represents a type of foreign aid can only be answered in relation to one's point of view.

The answer to both questions can easily be "yes" if you do not wish to enroll foreign students or if you wish to increase the cost of providing the teaching and research functions in your academic units when foreign students are involved. I prefer to discuss it from the positive point-of-view that foreign students are a valuable asset to American education and that U.S. institutions should consider their education as a part of the general institutional goals.

As the question was put to me earlier, it suggested that tuition charges were being levied against the foreign government, that usually is not the case. The foreign student most often pays the bill, frequently with the aid of home country scholarships from government, tribal units or private sources. Some are also recipients of U.S. scholarships or grants providing for partial payment of fees. In the case of graduate students, the most common financial aid is in the form of an assistantship in which case the institution finds itself providing not only a salary for services performed, but often in the public universities relief from at least the non-resident portion of tuition and fees. In effect, the non-resident tuition is paid by the university.

In the case of the student not receiving aid, a tuition charge of say, $3,000 per year, would likely prove prohibitive to a high percentage of foreign students and they would be lost to the U.S. institution. The only ones who could enroll under these circumstances would be those from wealthy families. We would be guilty of operating a program for the education of the elite, which is in direct opposition to the general philosophy of foreign student programs in U.S. universities especially when developing countries are involved.

I made an informal and unscientific survey of a few of the leading private universities in the United States and discovered no serious move toward differential tuition charges for foreign students, except one as yet informal move at one university looking at the possibility of a surcharge on foreign graudate students, with suggestions for the surcharge ranging all of the way from $50 to $300 per semester. Private universities seem to be charging about 50 percent of the cost back to the student in terms of tuition charges. In other words, if we seriously sought to make the foreign student "pay his way" it would require doubling the tuition in private universities and even greater increases in public institutions.

In most private universities foreign students appear to be eligible for financial aid on approximately an even footing with the American student.

Canadian universities appeared to have approximately the same policy with most universities feeling that it would be unfair to the student and not beneficial to the university to charge a differential tuition fee for foreign students. The Province of Ontario was the only province with a different approach. In Ontario a change is being made to add a rather substantial additional fee to the tuition for foreign students bringing it to a total of almost three times that currently being paid by an Ontario student. There is some discussion of a differential tuition charge in Alberta but it is being considered only for undergraduate students. One junior college in Alberta is now charging $300 a year additional tuition to foreign students. In general, the tuition charges at Canadian universities are relatively low. As an example, the University of British Columbia has a flat fee per advanced degree of $900 with a small additional charge per year if completion of the degree extends beyond a normal period of time.

We must also look at the problem selfishly. Rightly or wrongly, the foundation of many graduate academic programs is the enrollment of foreign students. In many instances, if it were not for the foreign students, we would not have the resources to provide academic opportunities for American students. Courses would be cancelled because of low enrollment and programs would be dropped as unnecessary and inefficient.

The U.S. has prided itself on providing opportunities for quality education to people throughout the world. Our recent sweep of the Nobel Awards attests to our quality. Let us not deny these opportunities to those who need them most by pricing ourselves out of the market. Let us not push the foreign student into the hands of the Russians who are eagerly working the struggling countries of Africa and other countries grasping for help. I have traveled in several African countries where the first quesiton was "Why doesn't the United States provide scholarships like Russia?" It is true that there is little satisfaction with the educational program in Russia, but they at least hang out the "welcome"sign. Let us not weaken the American influence in Europe and Latin America by taking education in the U.S. out of the financial reach of the interested student. Let us not look on aid to foreign students as a cost, but rather as an investment on the world's future and in a very selfish sense, an investment that will keep American number one in the minds and hearts of people everywhere. Last April I had the rare opportunity to sit next to Senator Fulbright at a luncheon and at that time he expressed dismay that the U.S. leaders can't seem to see the fact that dollars spent on education are a thousand times more effective than those spent on guns.

My answer to the original questions is that reduced tuition for foreign students is indeed a type of foreign aid—the best and most efficient type. We should make every effort not to raise the cost to the foreign student at least not beyond the cost charged to other U.S. students.

Andrew J. Hein

The proposition under consideration has its "foundation" in assumptions most of which are subject, in my estimation, to serious challenge, and is ex-

pressed in terms which are "loaded" and in most instances appears as economic analysis, as if the question had a single dimension.

To put the question in its proper perspective I think we must first define what we mean by the graduate education enterprise and then see if and how the student from another country fits into this scheme. While over-simplified, I would suggest that graduate education encompasses those post-baccalaureate programs of study and research leading to the master's and doctorate degrees excluding first professional degrees—primarily those in medicine, law and veterinary medicine. The old simple dichotomy of academic vs. professional degrees no longer seems to be a clear or fair method of categorization.

Graduate education as compared with undergraduate or professional training is characterized by less emphasis on formal course study and a fixed curriculum and more reliance on the seminar, independent study, and research. These latter characteristics identify and underscore the tremendous importance of good selection criteria for the student body since peer teaching in the seminar is invaluable, and unstructured learning experiences through interaction outside the classroom contribute significantly to the quality of the education for the students both singularly and as a group. The diversity of backgrounds of the students introduces varied positions on topics of discussion which contribute to the broadening educational experience of not only other students but the faculty as well.

If diversity of background to provide for intellectual stimulation of students and faculty is important, then it follows that the greater the diversity, provided strength of preparation is present, the stronger the graduate program will be or become. Since talent is not a respecter of geographic or national boundaries, it follows that the diversity should simply not be sought from within our own nation. Please note that I am already attempting to change the focus of the discussion as it generally emerges from one in which the foreign student is seen only as a consumer to one in which the student is viewed as an integral part of the configuration as both contributor and consumer. We are no longer left with the view that we are doing students a favor. It also destroys the image of the student doing us a favor. The image is now one of the student playing a part in a planned interaction pattern of graduate education based on strength and diversity in preparation.

This also forces us to discard the notion of our engaging in "foreign aid." Our selection is based purely on academic considerations recognizing that there may be unintended or at least not directly intended secondary effects. These may be either good or bad depending on one's social values. I doubt that anyone wants to engage in training individuals to work in a vacuum. It would not be difficult, I am sure, to find numerous examples of foreign nationals trained in the U.S. who applied their training to situations which we would regard as socially beneficial (developing a new strain of rust resistant wheat or a new engineering technique) or socially harmful (development of atomic weaponry for a sovereign state with whom we are not on the most friendly terms and which might, if provoked, use these weapons against us). The goodness or badness of these secondary effects must be judged in the context of one's social values. If the weaponry had been developed by the foreign student for

the U.S. for potential defense against our adversaries it might not be, and probably would not be regarded as bad.

The general proposition also rests on another assumption which I regard as shaky. A higher tuition rate for foreign students implies that it costs us more to train such a person than one who is a resident of our state or at least someone from within our country. I would like to suggest that if this is the case it is probably a function of poor selection rather than anything inherent in the foreign student *qua* students. If the student arrives with poor background preparation, inadequate language facility, or a record of scholastic attainment in his home country which should have given us a clue to the likelihood of academic difficulty here, the period of training will probably be extended thereby resulting in an inefficient use of limited resources, or it may end in failure which again represents an inefficient use of our resources and a psychologically traumatic experience for the student. Note that the same can be said for a U.S. national with shortcomings which lead to a longer-than-expected training period or failure after a try.

There are some costs which might be identified which are solely related to the foreign student such as an international student adviser, English language training etc. but I would argue that these are ancillary to the mission of an academic institution. We could fulfill our mission both to foreign and domestic students without these offices although possibly with some added difficulties. These increased costs, which can be clearly identified with the education of the foreign graduate student should not overshadow the more general consideration of the question of whether it costs more to train a foreign national than a student from the U.S. I suspect that this confusion is being introduced into most discussions of the subject at the present time and thereby causing erroneous conclusions to be drawn. A higher tuition level would also enhance the elitist aspect of graduate education for foreign nationals. I am not at all sure that this factor is not already at work in determining the foreign contingent in our graduate schools but I think the effect would be greatly enhanced if another (and higher) tuition level were established for foreign students.

With these considerations leading me to oppose tuition increases, I think it important to stress certain areas of responsibility for us to pursue if we are to be able to defend our stand. We must be ready to explain to legislatures, regents and other governing bodies the concepts of peer teaching and diversity, and their importance in graduate education. This we can do only if we are ourselves convinced of their importance. Another responsibility we have relates to making sound admissions judgments. I would like to suggest that if international graduate student education costs per capita are higher than those for domestic students we have every reason to carefully examine the way in which we select our foreign students. We have been long on lip-service but short on investing limited resources in this area. In my view, we should have an institutional stance on involvement in international education. This is important not only as a planning document but it also provides a vehicle for stating the general philosophy of education to which we adhere and in which an international component is incorporated as a part of a unified configuration. The international dimension is not a luxury to be involved in when the pinch of finances does not have to be dealt with, but an integral part of a

quality graduate program. Such a statement would also provide a means of informing interested persons of the ways in which we have benefited from the international dimension in the form of foreign trained faculty, entré to research in other countries.

Hugh M. Jenkins

The title of our presentation today is "The International Student in Graduate Education."

The question to which we were asked to address ourselves particularly is: "When we charge foreign students no more than out-of-state students—are we really subsidizing them and providing foreign aid?"

In terms of dollars, and in the context that education is confined to national boundaries (i.e. that we are providing a brand of education that is exclusively American)—the answer is *yes*.

However, questions themselves give rise to questions, and I would like to consider briefly the relationship of our basic question to other unanswered queries in the field of graduate education in U.S. universities. Most of these inquiries are encompassed in two fundamental questions—1. What is the responsibility of our educational institution, *any* educational institution, in the broad context of educational development? 2. What is the proper role of an educational institution in a free society?

To answer these questions, I would like to refer back to a number of reviews and examinations that have been directed specifically to the role of the graduate school and the professional school in the global society in which we live today.

In 1959, the Ford Foundation, at the request of the U.S. Department of State, created a Committee on the University and World Affairs, and like many committees, this group prepared and published in 1960 a report entitled *The University and World Affairs*. It was an impressive report, reflecting the prestige of the Committee which included, among others, the then Secretary of HEW, Arthur Fleming, John Gardner, William Fulbright, and Dean Rusk, then President of the Rockefeller Foundation.

The report has many specific references to graduate education. Two extracts give the essence of its findings:

The educational focus of most professional schools in American universities is overwhelmingly domestic for the strong vocational reason that they train students to practice professions in the United States and frequently in specific states. In important ways, this principle of professional education has been outmoded by the growing American involvement with the rest of the world. A significant proportion of professional graduates can expect to find part of their careers in foreign areas, whether their profession be law, education, public administration, business, medicine, public health, engineering or agriculture.

The tasks of higher education in world affairs require the collaboration of the universities of many nations. New patterns of education are emerging which require sharing of experience and competence by many nations. A new

universality of scholarship is emerging to replace the one founded on the educational systems of Western Europe.

The report goes on to note that all American universities should improve the competence of their graduate and professional schools to teach and to conduct research on international aspects of their disciplines and professions.

It is, perhaps, only fair to recall the circumstances in which this report was written. It was 1960, John F. Kennedy had just been elected President, international commitment and the international responsibility of U.S. educational institutions were accepted as part of the role of the United States. Public and private funds were available—no one questioned costs, everyone was exclusively concerned with goals.

Moving along the decade of the sixties, we find another prestigious report, written by acknowledged authorities and focussed more particularly on graduate education—I refer to the report published in 1967, *The Professional School and World Affairs*, the result of a two year study by another blue ribbon committee (2 college presidents, 3 chancellors, 2 graduate deans, etc.). Their review concentrated on the reciprocal impact between the professional school and international affairs. The study encompassed the fields of: business & public administration, agriculture, engineering, law, medicine, and public health, and education.

Noting that their report was a follow-up to the 1960 statement on the University and World Affairs we find the statement:

"One starts with the noble objective (i.e., the recommendations of University & World Affairs) and seeks to shorten the distance between its generalities and that section of the real world to which they refer—specifically between internationalism—the most inclusive view, and professionalism—a narrowly conceived view of specialized knowledge."

Noting that what might be desirable for its relevance to world affairs could be equally relevant and desirable in purely national and local terms, the report goes on to state—it is no longer a matter of asking but of asserting that a graduate without a world perspective on his profession has not been properly trained. In this respect it is significant to note the comment made in 1962 by Melvin Fox of the Ford Foundation in his paper "Foreign Students in American Colleges."

"Whatever form a university's involvement in international activities may take, exchanging students, teachers, administrators and educational specialists is the best way to tie together the entire international educational effort and establish the vital arteries that are essential for communication and eventual understanding."

At the same time the report on *The Professional Schools and World Affairs* sounds some warning notes:

i.e.—we have a job of selling to do and it hardly seems the best way of beginning the bargaining to ask the customer how *little* he is prepared to buy. And notes that:

The proclivity of the professions for regarding their own world activities as intellectually second class has been disastrous in its outcome.

All together, while the thrust of the report is still positive (e.g., "the professional schools of the United States are becoming more deeply involved interna-

tionally."), we find an undercurrent of concern for the necessary financial support on the assumption that this is not the responsibility of the university itself—e.g.:

- The university must ask itself whether it has available resources (more pointedly—has it had the experience in securing foundation and government grants?).
- Do not underestimate the need for a broad and serious commitment—time and financial costs are high—and paranthetically—
- Major philanthropic institutions should continue, as in the past, to aid professional schools to develop their international programs and activities.

Underscoring the need for outside support the report also includes as an appendix a list of federal programs that may be a source of funding for international activities entitled "Federal Money for Education."

All together we may say that the 1967 report *The Professional School and World Affairs* still emphasizes the commitment to international programs, reflects some encouragement from the passage of the International Education Act of 1966, but is beginning to reflect also some anxieties about finances, probably inspired by a growing realization that this Act is not going to be funded.

In 1969 the debate continued with the publication of the report *Internationalizing the U.S. Professional School*—a follow-up by the Educational and World Affairs reporting on a series of conferences on the 1967 report.

By now we are seeing a change in attitude—international education is no longer on the sunny side of the street. The possibility of funding the International Education Act grows ever more remote, funds for AID sponsored programs are diminishing and the growing tragedy of Viet Nam is taking its toll in international commitment. While the report acknowledges the inevitability of the international involvement of professional schools it emphasizes the problems of implementing this involvement. There is a poignant note in the statement in the report "The need is great. If the universities wait only to invent programs which can qualify for a grant of money, it will mean that they have not comprehended the opportunity which has been present for a long time to strengthen the sinews of man's mind for a better world."

And so we come to 1970 and the report of a Wingspread colloquium which has a significant title *The Foreign Graduate Student—Priorities for Research and Action*. By now the tide has turned and the emphasis of past years has been diminished by the realities of the present—quotations from the report are dramatically revealing:

It notes—the growing public skepticism about the performance of their institutions (of higher learning) provides a sombre background for the discussions.

"plagued by growing pressures in their budgets, frightened by spreading campus unrest (the educators) met to reconsider some old, nagging and unanswered questions about the value of their respective foreign student programs:

Why admit more foreign students to American graduate schools?

What are the cost benefit calculations?
How are our varied national interests involved?
Comments on these questions were revealing:

- One cannot "prove" in terms of cost effectiveness whether it is more valuable to support an Australian professor in the science lab than it is to fund a professor in the graduate division of the College of Music—*because*— and here is the challenge—the proving of costs involves social values.
- Acknowledging that these kinds of decisions must be made internally—the report goes on to note that "in a time of declining aid (to education) costs must be defined in an awareness of political imperatives.

The bottom line of the equation is stated in stark terms—the need for an institutional rationale for the admission and training of foreign students. In his summary of the discussions at Wingspread, Gustava Arlt noted:

We need now to examine the objectives of foreign graduate student education to see what we intend to accomplish *besides* a simple benefit to international goodwill—and bringing the problem home to each institution. He noted that institutional autonomy is a cornerstone of the American educational system and must be given high priority. Thus, the first recommendation of the group which gathered together to consider the *Foreign Graduate Student—Priorities for Research and Action* was:

Each university should develop an explicit rationale for the admission of foreign students and prepare itself for closer scrutiny by boards of trustees and regents as well as by state and other funding agencies as to why these students are being admitted and supported. Perhaps the reasons why we are addressing the question raised toady may be found in the results of a subsequent study made in 1972 by our Association of two graduate schools in each of twelve major universities. Among their findings were:

1. that the percentage of foreign graduate students in these departments ranged from 2% to 49%;
2. that most of the universities surveyed do not have functional policies in support of their involvement in international education and their enrollment of foreign students
3. that most universities believe they have demonstrated their commitment to international education through their programs and services without formalized policies: *but* paranthetically and rhetorically it was noted
4. that "Concern was shown that in this current period of changing national and educational priorities, the absence of well articulated institutional policies may make foreign student programs particularly vulnerable to attack."

The conflict between pragmatism and purpose was perhaps most significantly demonstrated in a meeting called by Assistant Secretary Richardson at the Department of State in 1973. Here graduate deans and other academicians from ten major universities listed the reasons for the admission of foreign graduate students. On a practical basis they noted it was:

1. to recruit the best possible talent
2. to maintain the optimal number of students in the department
3. to fill the need for qualified graduate assistants (it being noted that

foreign students can be obtained at lower rates than U.S. students.) and reflecting the high purpose of education they added:

4. to implement a policy that relates to the world-wide community of those engaged in a particular discipline.
5. to extend a particular field by providing a nucleus of trained talent to develop new schools and faculties in foreign countries.

The question raised in today's discussions suggests the debate still continues—the questions are still unanswered. Perhaps we need to ask ourselves, not so much how much we are paying, but what we are buying and what is the real value of our membership in a global community of scholars.

In these terms the subsidizing of foreign students and scholars should not appear in the institution's statement of income and expenses, but rather in the balance sheet of liabilities and assets.

BIOMEDICAL SCIENCES—SECOND SESSION

Chairman: William H. Macmillan, *University of Alabama*
Herbert B. Pahl, *National Academy of Sciences*
Jerold Roschwalb, *National Association of State Universities and Land-Grant Colleges*

NATIONAL NEEDS FOR BIOMEDICAL AND BEHAVIORAL RESEARCH PERSONNEL

Status Report of a Continuing Study

Herbert B. Pahl

Once again it is my pleasure to meet with you during the annual meeting of the Council and to review for you the activities and current directions of the study being conducted by the National Research Council's Committee on a Study of National Needs for Biomedical and Behavioral Research Personnel.

In order that all of us this morning may start from the same point, I would like quickly to review for you a few matters relative to the legislation which undergirds this study. In doing so, I ask the indulgence of those who already are familiar with the history and provisions of the Act. In brief, then, the National Research Act (PL 93-348) was enacted into law in July 1974. Title I of the Act, known as the National Research Service Award Act, established in place of the authorities under which NIH and ADAMHA provided support for research training, a program of NRSA awards, both individual and institutional, which provided support at both the predoctoral and postdoctoral levels for up to three years. Each award carries with it a requirement that the awardee must repay the amount of federal support provided either through service (health research, teaching, or other approved health service activity) or in money according to a formula. After July 1, 1975, awards by NIH and ADAMHA for research training may be made only in those subject areas for which the National Academy of Sciences has determined through its continuing study that there is a need for such personnel.

Section 473 of the Act directed the Secretary, HEW, to arrange with the National Academy of Sciences for a continuing study to establish the nation's overall need for biomedical and behavioral research personnel, the subject areas in which such personnel are needed and the numbers of personnel needed in each area. In last year's presentation I summarized for you the other requirements imposed by Section 473 of the Act, and the history of the Academy's response through the Fall, 1975. I now wish to present the highlights of the Committee's 1976 report and give an overview of the Committee's current activities as it embarks upon the preparation of its third annual report.

In attempting for this year's report to estimate the overall need for biomedical and behavioral research personnel, the Committee and its advisory panels have considered the most recent Ph.D. manpower projections made by the National Science Foundation and the Bureau of Labor Statistics, and various

tabulations and analyses of data from files maintained by the National Research Council.

For the analysis of the market for M.D. researchers, the Committee has examined data from the American Medical Association and the Association of American Medical Colleges. Unfortunately, neither source provides complete information on the total number of M.D.'s and other professional doctorate recipients qualified to conduct clinical research. Graduate and undergraduate enrollment estimates were obtained from the Office of Education and the National Science Foundation. All of these data have been useful in projecting employment requirements in the academic sector, but the inability to isolate selected subpopulations has made it impossible to separate health related research positions from other employment opportunities in the biomedical and behavioral sciences. Accurate data for personnel needs by the industrial sector also are most difficult to obtain.

Despite the deficiencies of these and other data sources, the tabulations drawn from them have been quite useful in describing trends and components of supply and utilization in the Ph.D. labor force in the biomedical and behavioral fields. The Committee has examined these trends and has concluded that the overall needs for these Ph.D.'s are not expected to continue to expand as they did during the 1960's, primarily because of the anticipated stabilization of undergraduate and graduate enrollments and a more modest growth in federal research expenditures. Some evidence of changes in utilization patterns of recent Ph.D. recipients in these fields, together with the age distribution of the current biomedical and behavioral Ph.D. labor force, which is rather young, all indicate that the labor force may be expected to continue to expand significantly. This, despite the fact that the rate of growth in Ph.D. production appears to be slowing down.

Before proceeding to summarize the major recommendations of the 1976 report I want to point out that although the Committee's analysis of current and anticipated market demand leads it to conclude that current personnel needs generally have been met in many biomedical and behavioral fields, particular areas of shortage do exist and will continue to arise. The Committee also noted that although an increase in the number of researchers was one goal of federal training support, another was to bolster the quality of training programs and to ensure that training was available in areas of national interest. Thus, the fundamental assumption linking the federal responsibility for research to a responsibility for training has been, and remains, that the quality of research depends primarily on the talents and training of the individuals attracted to a research career. The infusion of federal support, therefore, has had not only a salutary impact on the needed supply of researchers, but has also led to a continued improvement in the overall standards of research training. Federal training grant/fellowship programs are now recognized as highly selective and conducive to quality training. In adjusting public policy to reflect changing market conditions, federal policy thus should seek to sustain and enhance this tradition of high quality training.

The Committee stated that the federal responsibility for health research training goes beyond the simple assurance of access to graduate and postdoctoral training, and extends to the provision of programs that are of a high level

of excellence in areas relevant to the national interest. Such responsibility may include not only particular research problems but also the development of whole new areas of research need. Innovation in programs must continually be encouraged. Financial constraints placed on departments and institutions militate against their taking the initiative or being able to follow through on new ideas. The federal government's support is critical to such innovation and must therefore include, as much as possible, provision for program support as well as trainee support.

Let me now turn to the Committee's findings. The Committee made a number of specific, even bold, recommendations in its 1976 report. It recognized that, realistically, there are limits to available resources and serious attempts therefore must be made to establish priorities. The recommendations reflected the Committee's thoughtful consideration of the available supply and demand data for each of four broad fields for which it had established specific advisory panels—Basic Biomedical Sciences; Behavioral Sciences; Clinical Sciences, and Health Services Research. For each of these aggregate fields the Committee recommended levels of federal support for predoctorals and postdoctorals for fiscal years 1976-1978, and addressed the needs for and use of training grants and fellowships.

In summary, the Committee recommended the following:

1. In the basic biomedical sciences a modest but significant reduction of about 10% in the number of federally funded predoctoral candidates from the FY 1975 level (6,000), but to continue unchanged the number of federally funded postdoctorals (3,200). The Committee further strongly recommended that predoctorals be supported primarily via the training grant mechanism, whereas fellowships primarily should be utilized for support of postdoctorals.
2. In the behavioral sciences, the program of federal support should be changed from the current ratio of 10% predoctorals/90% postdoctorals to one which ultimately will show a ratio of 70% postdoctorals/30% predoctorals. This change should be implemented gradually and at a constant level of federal funding through Fy 1978. In particular, the Committee recommended that the number of predoctorals be reduced by about 300 each year and the number of postdoctorals be increased by 150-200 each year until the recommended ratio is achieved. The Committee recommended further that for both predoctorals and postdoctorals federal funding should remain at approximately the current ratio of 82% training grants and 18% fellowships.
3. In the clinical sciences the actual need for research trained clinicians justifies some emphasis on post-M.D. research training in the immediate future. Thus, it was recommended that 2,800 trainees and fellows should be supported at the postdoctoral level by the end of FY 1977 and this level maintained through FY 1978. This recommended level for FY 1977 represents a one-third decrease from the peak level of postdoctorals funded in FY 1969 (about 4,200) when clinical specialty traineeships and some clinical residencies were also being funded, but a 10% increase over the number funded by the NIH in FY 1975 (about 2,550).

For the NIH-sponsored Medical Scientist Training Program, which supports graduate level training in medically relevant scientific fields, leading usually to the award of both the M.D. and Ph.D. degrees, the Committee recommended that approximately 600 trainee positions be funded in FY 1977. This is an increase from the 580 positions authorized in FY 1976 and the approximately 550 trainees supported in FY 1975.

4. In Health Services Research, the Committee was unable to make a specific numerical recommendation because of the lack of a sufficient data base, but did urge maintenance of the current level of relevant training activities by NIH, ADAMHA, and HRA. It further recommended that both predoctoral and postdoctoral training in this area should be undertaken largely through training grants rather than through fellowships.

Returning to some of the considerations which lie behind the recommendations for the basic biomedical and behavioral sciences, the Committee reviewed estimates of the annual rates of growth through 1980 of supply pools of biomedical and behavioral scientists. These estimates were based upon determinations of first year graduate enrollments, estimated numbers of doctoral degrees to be awarded each year, age distribution of the scientific labor force for each field, and expected attrition of each pool as the result of deaths and retirements. Since only about 1% annual attrition is expected in these labor forces, while the number of Ph.D.'s being awarded annually approximates 8% (biomedical sciences) and 12% (behavioral sciences) of the respective 1973 labor forces, it became evident that by 1980 the supply side of the supply-demand equation is going to increase by 5.8% per year for the biomedical sciences to 8.8% per year for the behavioral sciences as the result of people already in the educational pipeline. If the number of doctoral degrees expected to be awarded in 1979 were to drop to 2,500 from the 3,900 awarded in 1975, the annual growth rate of the pool of biomedical scientists would still increase by 5.3%. Similarly, if the number of doctoral degrees awarded in 1979 were to increase to 5,000 from the 3,900 awarded in 1975, the annual growth rate would be increased to 6.6%. Thus, the Committee's study is in general agreement with recent studies by NSF and BLS which also show significant increases in the scientific manpower labor pool over the next several years.

With the knowledge that these increases in supply will occur at the same time that both faculty appointments and federal research expenditures are tending to level off, and that traditionally approximately two-thirds of biomedical and behavioral scientists are employed in academic institutions, it is evident that academia no longer will be able to absorb all of the new graduates. One of the interesting questions to ponder, then, is where these skilled investigators in the future will find employment—industry? federal and state laboratories? private non-profit institutes?

Obviously, both total employment opportunities and the kinds of employers available will depend very much upon the policies pursued by the federal government for the support of biomedical research, the planning for and delivery of health services, the investigation of environmental issues, the support of health professional schools and the production of health manpower.

In making these assessments, it has been assumed that important factors such as relative wages paid to scientists and the desire for education and

choices of career fields by the general population will remain generally unchanged.

As noted already, however, the Committee has heard anecdotal evidence which supports the view that recent PhD.'s increasingly are filling lower level positions, thus "enriching" the employing organization. Of course, what may be considered as a desirable enrichment from point of view of the institution or organization frequently is viewed as highly disappointing and frustrating by the one who is doing the enriching. Thus, one who has been highly trained for a career in research now may find his skills underutilized or, at times, unutilized.

Before leaving this topic, I should emphasize that the Committee recognizes that there is no serious current unemployment, and none is expected over the next five years. It also recognizes, however, that underutilization problems will increase in certain fields, and it is to these serious issues that the Committee will continue to devote its attention.

I now wish to leave the topic of this year's report and recommendations and mention very briefly a few things relative to the NRSA legislation, the recent public meeting which the committee held and, finally, provide an overview of our current activities.

First, the legislation. The original Act, PL 93-348, was authorized for one year through June 1975. Following this the NRSA program was administered under the authority of a continuing resolution until the passage last spring of the Health Research and Health Services Amendments of 1976. This legislation both extended the authority of the Act through September 30, 1977 and, among others, made the following changes in the Act: (1) brought under the NRSA authority the research training programs administered by the Division of Nursing of the Health Resources Administration; (2) changed the date from March 31 to September 30 by which the Committee is to provide its annual report to the Secretary, DHEW, and the Congress, and (3) stated that the continuing study of research personnel needs shall be conducted in consultation with the Director of the National Institutes of Health.

As the result of these changes, the Committee is planning to issue its next report in September, and to address within its set of recommendations needs for research personnel in nursing.

In addition to consulting with federal agency officials, the Committee has been interested both in communicating its findings to the scientific, academic and other employer communities, and in making it possible for individual scientists and appropriate professional organizations to make their views known to the Committee. Toward this end the Committee has distributed nearly 4,000 copies of its 1976 report, nearly half of which were sent to key government, academic, professional society and foundation officials and members of advisory groups, as well as to university and selected government libraries. The remainder were distributed in response to requests from individuals and organizations.

As a further step in establishing communication with interested individuals and organizations, in November the Committee held in Washington a public meeting for the purposes of obtaining comments and opinions on the Committee's 1976 report and of receiving guidance and suggestions for the future work

of the Committee. Nearly 40 individuals, representing either themselves or professional organizations, addressed the Committee throughout the day and into an evening session. The work of the Committee, I am certain, will benefit from the well-considered statements and opinions presented by those speaking on behalf of either special populations (minorities, women) or for specific fields of activity or problem areas.

The Committee and its advisory panels now are reviewing the proceedings of that meeting. One point repeatedly stressed by the Committee during the public meeting, is the need for hard data to support expressed needs or concerns.

The last item I wish to present is a quick overview of some current activities as we look toward the next report to the Congress.

Although the Committee will continue to utilize to the maximum extent possible the data available from federal agencies, the National Research Council and other non-federal organizations, it increasingly has found it necessary to collect for itself current information from both recent doctorates, academic departments, teaching hospitals, etc. Specifically, questions addressed to determining changes which have occurred in recent years in employment opportunities in different fields, degree of utilization of acquired research skills, relationships between doctoral field of training and employment research specialty, changes in the duration of postdoctoral appointments and the reasons therefor, the effect on departments of changes in the federal support of research training, sources of support during research training, etc., are central to the Committee's task.

To answer some of these questions the Committee recently has sent a questionnaire to a sample of scientists who received the Ph.D. degree between 1971 and 1975. Also, working closely with the NSF, the Committee hopes to be able soon to survey basic biomedical and behavioral science departments in order to obtain both factual information as well as tap the perceptions and judgments of those who are responsible for training tomorrow's investigators. Specifically, the departmental questionnaire has three major objectives: (1) to gain insight into overall departmental policy relating to enrollments and training support levels; (2) to monitor current job market conditions, and (3) to assess the importance of federal support in the training process. Should this survey proceed, we need and solicit your cooperation.

Although questionnaire surveys are difficult to design, costly to conduct and burdensome to those who are asked to respond, it obviously is necessary for the Committee to obtain answers to specific questions and to have up-to-date information if it is to be able to respond to the Congress in a responsible way on these very important questions.

The resources of the American Association of Medical Colleges also are being utilized by the Committee's Clinical Sciences Panel to obtain additional information about the research training which is conducted within teaching hospitals. Finally, special efforts are being made to identify and obtain information about the availability of and needs for research personnel in the field of health services.

In these few statements I have summarized months of effort by the Committee and its panels to design studies whose results will be of assistance in

addressing the issues the Congress has posed and in formulating appropriate recommendations.

In closing I wish to stress the fact that the Committee understands and fully appreciates the complexity of the task it has been asked to undertake. Because of this complexity, it recognizes that a long term investment of effort and money will be required in order to develop the necessary methodologies, acquire the needed data base and conduct in increasingly sophisticated fashion the required analyses. The Committee believes, however, that a modest beginning has been made and that with the cooperation of both individuals and organizations within the scientific community further progress can be made in assessing research personnel needs in the biomedical and behavioral sciences.

Thank you again for the invitation to meet with you. It has been my privilege to review for you some of the work of the Committee.

THE WASHINGTON SCENE: CURRENT AND PENDING LEGISLATION

Jerold Roschwalb

Many years ago in what must have been a calmer, more reasonable time, a professor of homiletics instructed me as follows: keep your talks to within half an hour. If you do not strike oil by then, stop boring.

If I am to follow the teaching of my eclesiastical mentor, I have approximately 27 minutes to draw some parallel between higher education's choice of haberdashery or rejection thereof, and our current parched state if some of the words of the academy are to be taken seriously. My mentor also noted that a good dictum for morning sermons was: tell them what you are going to tell them, tell them, and then tell them what you told them. I will confine my remarks this morning to a few points of what I hope to be common interest to this group.

First, what happened in the 94th Congress in a general way that higher education needs to learn from. Second, what happened in the great accomplishment comprising the reauthorization of the comprehensive health manpower legislation and what does that tell us for the coming years. Third, what might we look forward to in the approaching reauthorization of the biomedical health legislation involving specifically the heart and lung and cancer institutes. Fourth, where are we in the world of indirect costs. And fifth, and finally, what can we say intelligent about the approaching installation of the Carter Administration and what that might mean for the world of research and the role of science and the university community for the next several years.

The 94th Congress presented a kaleidoscope of national attitudes towards the country's universities and the work performed there. It was a Congress which passed the Bauman amendment in the House of Representatives which was either silly or immoral or both since it would have been impossible to administer as enacted. It was a Congress which almost terminated the

MACOS program at NSF, and did put an end, at least for now, to the creation and dissemination of new curricula, particularly those in the social sciences. It was a Congress which gave life to the problem of indirect cost about which more later, and also a Congress which has produced legislation more favorable towards assisting students obtaining postsecondary education and a Congress which focused on some real problems of providing health services in rural America and in family or primary care. Depending on the score sheets you keep, the higher education community came out of the Congress either in very good or excellent condition. The despondent notes heard are real, and very bad things occured. But the case could be made that they occured because the higher education community was challenged and failed to meet the challenge well or at all in too many instances. Despite attacks from many quarters, higher education still represents one of the favorite children of America's family. If funds seem to be harder to come by than they were before, the reasons have more to do with other demands made upon limited dollars resources than upon the willingness of the Nation as represented by the Congress to fund those things closest to the hearts of academe. But this Congress and the one that follows it has raised some questions which have gone unanswered. Graduate education, for example, has a very low number on the priority list of Congressional attention. There are a few champions for promoting new programs of fellowships and assistantships in graduate education, few concerns that insufficient numbers are being trained of sufficiently high quality. The concern over those famous Ph.D.'s driving taxi cabs—I never met one, and if I did, I would not feel despair, but joy over the possibility of having a decent conversation with a cab driver—the memories of those cab drivers are still with us, and the predictability of where manpower will be needed is still left to those who can study the entrails of the pheonix before it rearises rather than to any crafty scientist. The 94th Congress was where the crazy title attacks reached an apogee of silliness in the hands of people who know better, but who found political capital in those attacks. It was a Congress also which decided to overcome its greatest concerns relating to those crazy titles by increasing funding for basic science research to the highest levels ever, though not without the help of a champion in the form of Sen. Mathias and some very useful work from campuses, persuading enough members of the Senate to support those additional funds.

Perhaps of greatest interest to this audience was how that Congress conceived, and then gave birth to its new health manpower bill. In actuality, that bill was in the making for two Congresses. The long time it took was needed to persuade a lot of people that the problems of geographical maldistribution and specialty maldistribution in the medical field was a very real thing and could be, if not cured, alleviated, by specific Congressional mandate. The bills produced, both in the House and the Senate, were enough to scare any protector of the autonomy of the higher education institution out of his wits. Each bill, in its own way, took upon itself and the federal government, the responsibility of mandating curricula changes and admission processes to the nation's medical schools, pharmacy schools, dental schools, and so on. It remains one of the great concerns of those who value that intangible phenomenon known as academic integrity and institutional autonomy that the leaders within the

disciplines protested legislative proposals only when they are uncomfortable, not when they violate a fundamental principle. Direct orders to pharmacy schools in organizing curricula were met by minimal challenge since the pharmacy schools' leadership apparently believed there would be no trouble meeting the standards. As we have learned too many times in higher education, innocence lost cannot be regained. The first intrusion into academic freedom is only a precursor to many more intrusions. In the biomedical bill, wisdom and reason did prevail. Almost every execrable element violating fundamental university principles was modified, amended or removed in the conference to produce an extraordinary piece of legislation. As seems inevitable, there was one hitch. To address what must be described as the scandal of American students in medical schools abroad—the so-called Guadalajara syndrome—and to respond to the belief of Congressman Rogers that an increase in the number of physicians is a real need; section 771 (b) (3) produced authority for the Secretary of HEW to require of medical schools receiving capitation that they set aside for U.S. citizens who had completed two years of medical school abroad and who had passed the first part of the Medical Boards, spaces—presumably in their third year classes. However you analyze this, it cuts into the admission process in our universities. Whether it be convenient or inconvenient, whether it be possible or not, the fact is that the federal government has now dictated who shall be admitted and by what manner in our institutions' medical schools. Much work is proceeding now. First, to receive from Capitol Hill, pronouncements which will declare the intent of limiting the amendment to this legislation for a two year, one-shot attempt to resolve, at least in part, the Guadalajara problem, and further, to help develop regulations based on the very great generalities in that law which will make it possible for institutions to apply standards other than academic which will determine whether students will be admitted or not. We just might be able to fake it. It just might be possible to play the game for two years without deeply violating fundamental principles in the academic community. If we cannot do it, it will mean rejecting capitation which means literally millions of dollars for institutions, dollars desperately needed by most institutions, and even highly desired by the well-endowed schools. After so many years of developing this legislation, compromising in so many different ways, members of Congress will be loathe to open the bill again to amend that clearly undesirable passage. Further, to open the bill in that direction is to open the bill in every other way. Residency requirements in primary care, now calculable on a national basis, easily could be converted to calculations on a per-school basis, one which would undoubtably knock out a third of our institutions from capitation eligibility. Such pyrrhic victories are hardly to be sought after.

This brings us of course to the legislation rapidly approaching. According to the new budget process, new legislation involving appropriations must be enacted by May 15 of the year preceding appropriations. The new Congress may be engaged for more than a few weeks in reorganizing itself, particularly if reforms proposed by various committees in the two Houses are paid attention to. This would give the Congress some three months to produce a reauthorization of the biomedical research legislation. More likely, the Congress will proceed to pass a one-year extension of the legislation, allowing it some fifteen

months to carry on hearings, do its own research, and its own thinking, and determine which way it wishes to go with that legislation. One would imagine that the reauthorization of the research bill would be focused on the research community's activity, and assuredly, stabilizing the accomplishments of biomedical research. Trying to give it greater security in funding and direction will take up much of the attention of the Congress. But in addition, it seems apparent that the Congress, through its committees, may go much further. Though it would appear to be properly the subject of national health insurance, the fact is that jurisdiction for national health insurance may lie in other committees in the Congress and the committees concerned for health research are loathe to allow this opportunity to pass. It also may be necessary to introduce some matters relating to health insurance through the back door of research. And it may be further, an attempt to rationalize the entire process of health care and services delivery in this country to change ultimately the manner in which we educate our health professionals as well as do the research and pay for that delivery that will motivate some of the actions of the Congress. In short, we might well look forward to attempts by the Congress in legislation dealing with health research to develop means of cost containment in what this nation spends on obtaining health care. Such questions as technology transfer and the dissemination of and proper use of and the cost benefit of sophisticated new technology will come under the scrutiny of the Congress in this year's hearings. While inflation certainly has proven a factor in the rise in the cost of health care, it is equally true that another reason for the increase is the extensive new testing and laboratory work accompanying health care. Obviously, the problem of malpractice insurance has provoked some of that testing, and the whole area of malpractice insurance may well come up for some scrutiny as well. Although it may seem somewhat out of place, it is a matter which we will have to pay attention to.

While all this is going on, we will face a continuing problem of the attack on indirect cost. To even the most sophisticated of laymen, the business under the rubric of indirect cost borders on alchemy. One school at 25% of salaries and something else, another school at 95% of just salaries and some other things—but to say total costs amount to the same at both institutions, how does that come about? And should you count the whole library, the dean's salary, the telephone booth outside of somebody else's laboratory? And if you know what it costs, why can't you put it in the direct cost figures? And what about the faculty, God love them, running into Washington to complain that the university is ripping off their grant from the federal government, keeping up to half of the total amount of money for administrative expenses when clearly the Congress intended the money to go for their research. In this area, there are several sources of dismay. There are those professional Members of Congress, who it would appear, generally question the manner in which the indirect cost situation has been handled for the past several years. There is also a good deal of intelligence and serious questioning which has not been fully addressed. And then there are those others who developed the Bauman amendment and the attack on MACOS and who now see indirect cost as their new frontier. They are organized, and passionate, and make a very good case on the floor of the Congress. At this point, there are no champions to speak

against them when they rise up to carry out their next legislative mischief.

The matter should not be insolvable. Either what the university community is doing with indirect cost is right or it is not. If it is, it has to be explicable—made into simple common sense and understood by intelligent and honest people, which is a simple way of defining the vast majority of most members of Congress. Has the effort been made by the university community? Which university has held a seminar on the subject for its delegation to the Congress. Which, for that matter, has even sought to make its faculty fully understand the nature of indirect cost and what role it played in the support of research at the institution. Which has succeeded in getting away from question begging on the subject such as the library and other administrative salary costs and sundry other items that are part of the totality on which indirect cost is based to make it possible for those representing the institutions in Washington to argue not only with intensity but with clarity and reason of how the system is in fact an irrational one. Progress is being made in this area. HEW has made new proposals to the Office of Management and Budget, and for the most part, they are sound with changes from earlier versions as a result of conversations with the community's representatives. HEW is acting under the best of faith and that will help in our dealings with the Congress. Perhaps we can stimulate a full study of the subject by the General Accounting Office, a Congressional arm, but an objective student of such matters, and perhaps the GAO will vindicate the university system. But the pressures will go on and they will represent one of the failures of the university community in its dealings with the federal government.

Elliptical as this talk must be, I will turn now to the final point: the new Administration. We have heard a good deal about restructuring government and no doubt that could help. A Department of Education, for example, would give a stature to education. A Secretaryship could likely attract men of higher caliber than a Commissionership. And presumably, some greater national planning and logic and funding could be developed in that process. Once again, the nation has an office of science advisor to the President. While that could be only symbolic, symbols are not to be despised. They represent emphasis. They point to attention and concern. They are to be valued and dealt with. The Carter Administration remains a remarkable mystery. The mood in Washington might best be described as Tokyo in September 1945. The bombs have stopped falling. Anxiety is somewhat lifted. Somebody named MacArthur is coming. What the occupation will really be like is at best a guess. To date, we have heard only a few appointments. They seem sound. The process of appointment seems soundest of all. To a great degree, what we will face in research will be a question of that _____ evaluations. Not whether he is commissioner or secretary, but whether she has guts, is bright, knows how to deal with the Congress, knows how to provide leadership, has realizable goals, is willing to fight for more than he and she are willing to settle for, will determine where we go in the business of science and health research under the Carter Administration. Mr. Carter is going to be President and will have his hands full in dealing with that extra-human effort to count on personal inclination counting very much. But his instincts will be important and whom he trusts to advise him on the future of science, whom he

decides will govern HEW, and the subunits below it in health and education will make a great difference. If The Congress will remain friendly—it is of us, and when we speak of noble goals for the people of America it is there to support us. It remains to be seen whether the higher education community, the science community in particular, and the health community in particular again, would be able to respond to the next series of challenges. There are indications that these communities are becoming in the best sense of the word, politicized. It would appear that they are beginning to understand that they are interest groups and must deal with the Congress from those points of view. They must be able to provide evidence to support those who are for them, and evidence to counter those who are against them. They must be able to muster support on the basis of sheer political clout where that is possible. They must do their homework and they must keep at this game in a continuous manner. I am very optomistic. I have seen remarkable progress in just the last two years. In my own association, some of the best work in the political process has taken place in our Health Policy Committee in names like Marston, Hogness, Boyd, McElroy and others. They have been deeply engaged in representing the interests and concerns of our institutions, their health schools, and their research faculty to the Congress. I think the Congress will listen. Whether the rest of the community will stop talking to itself and be equally responsive to the interests of the Congress will remain to be seen.

In short, I remain very hopeful that when we are offered the opportunity to quench our thirst, we will not push aside that fellow who makes attainment of the goal seem unreasonable.

Report on the Council of Graduate Schools—Graduate Record Examinations Board 1976-77 Survey of Graduate Enrollment*

Part I

Janis I. Somerville
Program Director
GRE Program
Educational Testing Service
December 1, 1976

Introduction

As a result of the difficulty of obtaining accurate information on graduate enrollments, and particularly trends in enrollments, the GRE Board and the Council of Graduate Schools began five years ago to conduct an annual series of surveys of enrollment of the membership of the Council of Graduate Schools in the United States. The Council membership consists of some 344 graduate institutions who grant either the master's or doctorate as the highest degree. The members of the Council grant 99% of the earned doctorates and 85% of the master's degrees awarded.

This year's survey, like those of previous years, is divided into two sections, the first of which was distributed in the early fall of 1976 with a request that results be returned no later than November 1, 1976. This report provides the results of the first questionnaire mailing; it is anticipated that the results of the second questionnaire mailing will be available early in the spring of 1977.

Sample Description

Survey questionnaires were sent to each of the 344 graduate schools which are members of CGS. A total of 312 questionnaires were returned for a 91% response rate, an indication of the continued cooperation of member graduate schools. Since the primary purpose of the questionnaire was to develop comparative data between 1975 and 1976, responses to questions were included in the analysis only when data were supplied for both years. Thus, the effective response rate per question will vary from a high of 91% for the overall sample to a low of 74% for the question concerning applications. While this variability is probably to be

*For reference purposes, this report is also issued as "CGS Communicator Special Report #8, December 1976."

expected, and is smaller than that found in previous years due to an increased effort to have -0- entered where appropriate, it does make comparisons across some questions of restricted value.

Comparison of Usable Sample and Base Population

	Number	*Percent*	*Number*	*Percent*	*% sample of each population subgroup)*
Total Institutions					
Public	230	67%	211	68%	92%
Private	114	33%	101	32%	89%
Total	344	100%	312	100%	91%
Master's Highest Degree					
Public	75	22%	65	21%	87%
Private	26	7%	24	7%	92%
Sub-total	101	29%	89	28%	88%
Ph.D. Highest Degree					
Public	155	45%	146	47%	94%
Private	88	26%	77	25%	88%
Sub-total	243	71%	223	72%	92%

Continued care should be exercised in attempting to compare results of this year's survey with published results of last year's survey insofar as 1975 data reported in the current survey may differ from 1975 data reported last year for several reasons. First, although the questionnaires and definitions remain unchanged from last year's survey, the actual number of institutions responding increased by 5.4% and the specific institutions responding in 1976 were not always identical to those responding in 1975. Second, some institutions noted that the data for 1975 which they were able to provide for this year's survey were different from, and better than, the 1975 data which they provided last year. Finally, there was an increase in CGS membership (10 institutions or 3%) and an increase both in the number of respondents (an increase of 16 or 5.4%) and in the response rate (91% this year as compared with 89% last year). Despite these limitations, the overall obtained sample (i.e., those submitting usable questionnaires on time) is representative of the total CGS population, although weighted slightly toward public Ph.D. institutions.

Comparisons of number and percentages of several ways of describing the available population and sample are shown above; it should be noted that "Master's Highest Degree" refers, throughout this report, only to those institutions for which the master's degree is, in fact, the highest degree awarded. Data for these institutions do not reflect master's degrees offered by institutions which also offer the doctorate.

The percentages shown in the table on page 186—and in Tables 1 through 8 at the end of this report—show response rate based on the number of institutions in CGS; e.g., the 312 institutions providing responses to this survey represent 91% of the CGS institutions and a 91% response rate is noted. Since the sample of institutions with usable data becomes less complete as the complexity of the questions or the difficulty of obtaining the data increases, the number of institutions providing usable data and the response rate that number represents are given for each question in the data presentation.

In addition, several users of this report have expressed an interest in the proportion of total CGS graduate school enrollment which the responding institutions represent and these figures, while approximate, are provided in a footnote to each table. Based upon the results of this year's survey, combined with additional data from the *Graduate Programs and Admissions Manual*, one may estimate the 1975 total graduate school enrollment for CGS members at approximately 845,000. Using this estimate, it is then possible to report that the 312 institutions which responded to this year's survey represent a 91% response rate (based on percentage of CGS institutions) and also accounted for approximately 91% of the 1975 total graduate enrollment at CGS institutions. This latter figure is created by taking the 1975 total enrollment reported this year (773,412) and dividing by 845,000. For subsequent questions, a similar computation has been carried out, removing from the 773,412 the reported total graduate enrollment of each institution which failed to provide a usable response to the question.

Results

The results of the survey are displayed in Tables 1 through 8. The tables present the number of respondents with usable data to each question (i.e., data for both years and for all parts of the question), the percentage that number represents of the total group or of the subgroup, e.g., public, the total number of students reported each year and the percentage change from 1975 to 1976. All data are presented by public, private, and total. In addition, Tables 1 through 4 also present data for institutions classified by means of the Educational Directory, Part 3, in terms of the highest degree awarded. These categories are: Public-Master's Highest; Private-Master's Highest; Public-Doctorate Highest; and Private-Doctorate Highest. This additional breakdown was not applied to later questions because it was not felt to be particularly important or because the differences were too small to affect the overall results.

Finally, all data were summarized by size of the responding graduate school, although these summaries do not appear in the tables presented. As with last year's report, this report bases size categories on quartile ranges by institutional type drawn from Part I of a prior survey. Thus, each size category—ranging from "1" for the smallest institutions to "4" for the largest institutions—will contain approximately 25% of all institutions of one type, facilitating meaningful comparisons of institutions by size. Size categories used in this report, by institutional type, are shown on page 4; results based on these size categories are noted in the following discussion, where appropriate.

Total Graduate School Enrollment for Size Categories, by Institutional Type
(Each size category contains approximately 25% of all institutions of that institutional type)

	(smallest) *Category 1*	*Category 2*	*Category 3*	*(largest)* *Category 4*
Public-Master's Highest Degree	0-750	751-1300	1301-2700	over 2700
Private-Master's Highest Degree	0-200	201-500	501-750	over 750
Public-Ph.D. Highest Degree	0-1200	1201-2300	2301-4100	over 4100
Private-Ph.D.	0-800	801-1400	1401-2300	over 2300

Discussion

Table 1—For the first time since this survey was initiated five years ago, there is reported an overall decrease (2.3%) in total graduate school enrollment for the institutions reporting. The only increase (0.4%) occurred in the private Ph.D. institutions. Viewed in terms of size categories, there is a consistency of decrease in all categories except private Ph.D. where slight decreases in the three smallest size categories were offset by a moderate increase (3.6%) in category 4.

Table 2—First-time enrollments also show a decline. There is an overall decline of 3.5%, resulting primarily from a 4.6% decrease in first-time enrollment in Ph.D. institutions. This in turn, reflects a decrease in all size categories at the public Ph.D. institutions (2.1% in category 2 to 8.9% in category 4) offset by an increase (4.7%) in the largest private Ph.D. institutions.

Table 3—This is the third year that the question concerning the total number of applications received for graduate study has been included in the survey. It should be noted that the response rate for this question (74%) is the lowest of the questions. Although the total number of applications reported shows an increase of 1.3%, public master's degree institutions experienced a decrease (3.5%) which was offset by a total 1.9% increase in Ph.D. institutions. By size category, applications for public Ph.D. institutions increased in all size categories.

Table 4—The number of graduate assistants (service required) increased in all categories except private master's degree institutions which report a small decrease (0.2%). The largest increase in both public and private institutions is at the Ph.D. level where an increase was reported in all size categories while the master's degree institutions reported a very slight (0.2%) total increase.

Table 5—The number of graduate fellows (nonservice required), contrary to that reported for graduate assistants as noted in the previous table, showed a slight decrease (0.8%). The rate decrease at private institutions (1.5%) was greater than that at public institutions (0.3%) while the most significant decrease by size category was in the largest public master's institutions which experienced a 30.7% decrease.

Table 6—This table indicates a breakdown of full- and part-time student enrollment for those institutions reporting. The report indicates an increased number of total enrollment reported, but a constant proportion of full-time (42%) and part-time (58%) students. This represents a departure from the trend since 1974 toward increase in proportion of part-time students. By size the largest private Ph.D. institutions and category 1 of the public Ph.D. institutions show the greater percentage increase in part-time students.

Table 7—The number of master's degrees awarded increased (4.7%) between 1974-75 and 1975-76. The major portion of the increase was in public institutions (5.8%) where an increase was shown in all size categories, master's (7.0%) and Ph.D. (5 5%) level. Private Ph.D. institutions total degrees awarded decreased slightly (0.1%), the decrease appearing in all but the largest by size category.

Table 8—The final table shows for the third consecutive year a decline, though slight (0.3%), in the total number of Ph.D.s awarded; 1.8% increase in the private sector was offset by a 1.1% decrease in the public institutions. In turn, the increase in the private sector was contributed by the largest (category 4) institutions (8.5%), which offset a decrease in each of the other three size categories.

Conclusions

Once again, the first part of the CGS-GRE Board Survey of Graduate School Enrollment has met with excellent response in terms of the number of participating institutions and, accordingly, in terms of the value of the data which have been generated. Due to the continuing high institutional response rate and the representativeness of the sample, the results appear to be highly valid in ascertaining short-term trends in American graduate education.

Several results are of note. First, the survey shows for the first time in its five years of reporting a decrease in total graduate school enrollment and in total first-time graduate enrollment. The proportional decrease in total enrollment was greatest in public master's institutions; in first-time graduate enrollment, the proportional decrease was greatest in public Ph.D. institutions. Second, the number of applications received for graduate study continues to show slight increase, with the proportional increase in Ph.D. institutions offsetting a decrease in public master's institutions. Third, the survey shows a continuing increase in the number of graduate assistantships awarded and a slight decrease in graduate fellowships. Finally, the number of master's degrees awarded continued to increase while the number of Ph.D.s awarded continued to decrease.

TABLE 1

Total Graduate School Enrollment by Type of Institution*

	Number	%**	*1975*	*1976*	*% Change*
Master's Highest					
Public	65	87%	136,309	129,965	4.7% decrease
Private	24	92%	19,751	19,610	0.7% decrease
Sub-Total	89	83%	156,060	149,575	4.2% decrease
Ph.D. Highest					
Public	146	94%	471,054	459,215	2.5% decrease
Private	77	88%	146,298	146,885	0.4% increase
Sub-Total	223	92%	617,352	606,100	1.8% decrease
Total Institutions					
Public	211	92%	607,363	589,180	3.0% decrease
Private	101	89%	166,049	166,495	0.3% increase
Total	312	91%***	773,412	755,675	2.3% decrease

*For purposes of this survey, institutions were asked to include all students considered as registered in the graduate school, including education, engineering, social work, medical and business programs leading to MA/MS or Ph.D, Ed.D., or other doctorates.

**Percentage figures are the number of institutions responding to this question as a percentage of the number available in the total group. For example, 65 Public Master's Highest Degree institutions responded out of a possible 75 such institutions in the CGS membership for an 87% response rate for that group of institutions.

***Based on the computations described under Sample Description on page 187, the 312 institutions responding to this question represent 91% of the CGS institutions and accounted for approximately 91% of the 1975 total student enrollment at CGS institutions.

TABLE 2

First-Time Graduate Enrollment by Type of Institution

	Number	*%*	*1975*	*1976*	*% Change*
Master's Highest					
Public	57	76%	29,516	29,379	0.5% decrease
Private	22	85%	4,827	4,834	0.1% increase
Sub-Total	79	78%	34,343	34,213	0.4% decrease
Ph.D. Highest					
Public	132	85%	112,796	105,333	6.6% decrease
Private	70	80%	39,523	39,969	1.1% increase
Sub-Total	202	83%	152,319	145,302	4.6% decrease
Total Institutions					
Public	189	81%	142,312	134,712	5.3% decrease
Private	92	82%	44,350	44,803	1.0% increase
Total	281	82%*	186,662	179,515	3.5% decrease

*Based on the computations described under Sample Description on page 187, the 281 institutions responding to this question represent 82% of the CGS institutions and accounted for approximately 81% of the 1975 total student enrollment at CGS institutions.

TABLE 3

Number of Applications for Graduate Study

	Number	*%*	*1975*	*1976*	*% Change*
Master's Highest					
Public	49	65%	61,917	59,737	3.5% decrease
Private	19	73%	11,798	11,876	0.7% increase
Sub-Total	68	67%	73,715	71,613	2.9% decrease
Ph.D. Highest					
Public	122	79%	358,290	365,763	2.1% increase
Private	65	74%	149,159	151,192	1.4% increase
Sub-Total	187	77%	507,449	516,955	1.9% increase
Total Institutions					
Public	171	74%	420,207	425,509	1.3% increase
Private	84	74%	160,957	163,068	1.3% increase
Total	255	74%*	581,164	588,568	1.3% increase

*Based on the computations described under Sample Description on page 187, the 255 institutions responding to this question represent 74% of the CGS institutions and accounted for approximately 74% of the 1975 total student enrollment at CGS institutions.

TABLE 4

Number of Graduate Assistants (Service Required)

	Number	*%*	*1975*	*1976*	*% Change*
Master's Highest					
Public	61	81%	5,807	5,819	0.2% increase
Private	23	88%	436	435	0.2% decrease
Sub-Total	84	83%	6,243	6,254	0.2% increase
Ph.D. Highest					
Public	128	83%	87,187	89,438	2.6% increase
Private	69	78%	19,527	20,174	3.3% increase
Sub-Total	197	81%	106,714	109,612	2.7% increase
Total Institutions					
Public	189	82%	92,994	95,257	2.4% increase
Private	92	81%	19,963	20,609	3.2% increase
Total	281	82%*	112,957	115,866	2.6% increase

*Based on the computations described under Sample Description on page 187, the 281 institutions responding to this question represent 82% of the CGS institutions and accounted for approximately 79% of the 1975 total student enrollment at CGS institutions.

TABLE 5

Number of Graduate Fellows (Nonservice Required)

	Number	*%*	*1975*	*1976*	*% Change*
Public	174	76%	18,574	18,519	0.3% decrease
Private	87	76%	14,146	13,932	1.5% decrease
Total	261	76%*	32,720	32,451	0.8% decrease

TABLE 6

*Full-time–Part-time** Total Enrollment*

	Number	*%*	*Full-time Number*	*%*	*Part-time Number*	*%*	*Full-time Number*	*%*	*Part-time Number*	*%*
Public	195	85%	233,231	43%	310,233	57%	230,002	43%	301,890	57%
Private	94	82%	60,702	41%	88,383	59%	59,217	40%	90,642	60%
Total	289	84%***	293,933	42%	398,616	58%	289,219	42%	392,532	58%

*Based on the computations described under Sample Description on page 187, the 261 institutions responding to this question represent 76% of the CGS institutions and accounted for approximately 73% of the 1975 total student enrollment at CGS institutions.

**Institutions were directed to apply their own institutional definitions to "part-time" and "full-time."

***Based on the computations described under Sample Description on page 187, the 289 institutions responding to this question represent 84% of the CGS institutions and accounted for approximately 83% of the 1975 total student enrollment at CGS institutions.

TABLE 7
Number of Master's Degrees

	Number	*%*	*1974-75*	*1975-76*	*% Change*
Public	208	90%	136,955	144,875	5.8% increase
Private	102	89%	41,665	42,053	0.9% increase
Total	310	90%*	178,620	186,928	4.7% increase

*Based on the computations described under Sample Description on page 3, the 310 institutions responding to this question represent 90% of the CGS institutions and accounted for approximately 90% of the 1975 total student enrollment at CGS institutions.

TABLE 8
Number of Ph.D. Degrees

	Number	*%*	*1974-75*	*1975-76*	*% Change*
Public	143	82%	20,166	19,936	1.1% decrease
Private	78	81%	8,631	8,780	1.7% increase
Total	221	91%*	28,797	28,716	0.3% decrease

*Based on the computations described under Sample Description on page 187, the 221 institutions responding to this question represent 91% of the CGS institutions and accounted for approximately 84% of the 1975 total student enrollment at CGS institutions.

The Constitution of the Council of Graduate Schools in the United States

1. Name

This organization shall be called the Council of Graduate Schools in the United States.

2. Purpose

The Council is established to provide graduate schools in the United States with a comprehensive and widely representative body through which to counsel and act together.

Its purpose is the improvement and advancement of graduate education. The purview of the Council includes all matters germane to this purpose. The Council shall act to examine needs, ascertain best practices and procedures, and render assistance as indicated; it may initiate research for the furthering of the purpose. It shall provide a forum for the consideration of problems and their solutions, and in meetings, conferences, and publications shall define needs and seek means of satisfying them in the best interests of graduate education throughout the country. In this function the Council may act in accordance with the needs of the times and particular situations to disseminate to the public, to institutions, to foundations, to the federal, state, and local governments, and other groups whose interest or support is deemed of concern, information relating to the needs of graduate education and the best manner of satisfying them.

In the analysis of graduate education, in the indication of desirable revision and further development, in the representation of needs and all other functions related to effecting its purpose, the Council not only shall be free to act as an initiating body, but it shall assume direct obligation for so doing.

3. Membership

Institutions applying for membership shall be considered in the light of the following criteria:

a. Applicants for membership must be accredited by the appropriate regional accrediting agency as a college or university approved for the offering of graduate work.

b. Applicants must have conferred at least thirty degrees of Master of Arts or Master of Science and/or professional Master's degrees in at least three professional fields or ten Doctor of Philosophy degrees, or appropriate combination, within the three-year period preceding application.

c. The degrees conferred must be adequately distributed over at least three distinct disciplines, such as but not limited to:

agriculture	electrical engineering	music
anthropology	English	pharmacology
astronomy	entomology	philosophy
bacteriology	fine arts	physics
biochemistry	French	physiology
botany	geography	political science
chemical engineering	geology	psychology
chemistry	German	Russian
civil engineering	history	sociology
classics	mathematics	Spanish
economics	mechanical engineering	zoology

The Committee on Membership shall consider all applications in the light of these criteria and make appropriate recommendations to the Executive Committee. The Executive Committee shall take final action on all applications for membership and shall report such action at each Annual Meeting.

The Executive Committee may invite and approve application by foreign institutions of good standing for affiliation with the Council if such institutions meet all criteria for membership except accreditation by an American regional accrediting agency. Such affiliates will be extended all the courtesies of membership except the privilege of voting.

4. Voting Power

In all activities of the Council, each member institution shall have one vote.

More than one representative of any institution may attend the meeting of the Council, but the member's vote shall be cast by the individual designated as the principal representative of the member by the chief administrative officer of the member institution.

5. Officers and Executive Committee

The officers of the Council and the Executive Committee shall be a Chairman, a Chairman-Elect, and the immediate Past Chairman, each serving for a term of one year. In the absence of the Chairman, the Chairman-Elect shall be the presiding officer of the Executive Committee and the Council.

There shall be an Executive Committee of twelve voting members, composed of the Chairman, the Chairman-Elect, the Past Chairman and nine members-at-large. Three members-at-large shall be elected by the Council at each Annual Meeting for terms of three years each, beginning immediately after the Annual Meeting.

The Chairman-Elect, chosen by the Executive Committee from its own past or present membership, shall serve in that capacity for one year. The following year, he will assume the office of Chairman, and the following year, the office of Past Chairman.

Each voting member of the Executive Committee must be the principal representative of a member of the Council and none may serve for two consecutive full terms.

If the Chairman is unable to continue in office, the Chairman-Elect shall succeed immediately to the chairmanship, and the Executive Committee shall choose a new Chairman-Elect.

Any vacancies occurring among the membership-at-large of the Executive Committee shall be filled by the Executive Committee until the next Annual Meeting, at which time the Council shall elect a replacement for the balance of the term.

6. Executive Officers

The chief executive officer of the Council shall be a President, who shall be a salaried officer, appointed by the Executive Committee and serving at its pleasure. The President shall serve as an *ex-officio* member of the Executive Committee without a vote.

7. Duties and Powers of the Executive Committee

In addition to the duties and powers vested in the Executive Committee elsewhere in this Constitution, the Executive Committee may, specifically: employ such staff and establish such offices as may seem necessary; incorporate; undertake itself, or through its agents, to raise funds for the Council and to accept and expend monies for the Council; take initiative and act for the Council in all matters including matters of policy and public statement except where limited by this Constitution or by actions of the Council.

8. Committees

In addition to the Executive Committee, there shall be (1) a Nominating Committee, (2) a Committee on Membership, whose members shall not be members of the Executive Committee, and (3) such other standing committees as may be established by the Executive Committee.

Except for the Nominating Committee, all standing committees and *ad hoc* committees shall be appointed by the Chairman with the advice and consent of the Executive Committee.

The Nominating Committee shall consist of five members of whom three shall be elected each year by the Council at its annual meeting, and two shall be the members-at-large of the Executive Committee who are completing their terms. The Chairman shall be elected by the Committee.

At least two weeks before each annual meeting of the Council, the Nominating Committee shall propose to the members of the Council one nominee for each member-at-large position of the Executive Committee to be filled and three nominees for members of the Nominating Committee. These nominations shall be made only after suggestions accompanied by supporting vitae have been solicited from the membership-at-large.

At the annual business meeting of the Council, additional nominees may be proposed from the floor. The election will then be held, and the nominees receiving the largest number of votes for the positions to be filled shall be declared elected.

9. Meetings

The Council shall hold an Annual Meeting at a time and place determined by the Executive Committee. The Council may meet at other times on call of the Executive Committee.

The Executive Committee shall be responsible for the agenda for meetings of the Council. Reports and proposals to be submitted for action by the Council shall be filed with the Executive Committee before they may be submitted for general discussion by the Council. No legitimate report or proposal may be blocked from presentation to the Council, but action on any proposal may not be taken until the Executive Committee has had an opportunity to make a recommendation.

In matters not provided for in this Constit ıtion, parliamentary procedure shall be governed by *Robert's Rules of Order, Revised,*

10. Limitation of Powers

No act of the Council shall be held to control the policy or line of action of any member institution.

11. Dues

Membership dues shall be proposed by the Executive Committee and must be approved by the majority of the membership after due notice.

12. Amendments

Amendments to this Constitution may be proposed by the Executive Committee or by written petition of one-third of the members. However they originate, proposals for amendments shall be received by the Executive Committee and forwarded with recommendations to the members, in writing, at least ninety days before the meeting at which they are to be voted upon or before formal submission to the members for a mail ballot. To be adopted, proposed amendments must receive the approval of a two-thirds majority of the members voting at the announced meeting or on the designated mail ballot.

13. Bylaws

Bylaws may be established by the Executive Committee at any regular or special meeting, subject to ratification by a simple majority vote of the Council at the next Annual Meeting.

Bylaws

1. In conformity with Article C of the Constitution, the President of the Council of Graduate Schools in the United States shall be paid an annual salary to be determined by the Executive Committee plus such perquisites as may be

necessary for the proper conduct of the office and such travel as may be deemed essential. The President is authorized to employ such additional personnel as is, in his judgment, necessary for the proper conduct of the office, to establish bank accounts in the name of the Council of Graduate Schools in the United States, and to draw checks and invest monies against the Council's account or accounts, subject to an annual audit of the books of the Council by a Certified Public Accountant and approval by the Executive Committee.

2. The Riggs National Bank of Washington, D.C., is hereby designated a depositary for the funds of this association and the said bank is hereby authorized and directed to pay checks and other orders for the payment of money drawn in the name of this association when signed by the President and the said shall not be required in any case, to make inquiry respecting the applications of any instrument executed in virtue of this resolution, or of the proceeds therefrom, nor be under any obligation to see in the application of such instruments of proceeds.

3. In the event of the dissolution of the Council of Graduate Schools, all then existing assets of the Council shall be distributed in equal parts to the institutions which will at the time be members of the Council.

4. After January 1, 1969, the fiscal year of the Council of Graduate Schools in the United States will correspond to the calendar year. (Prior to this date, the fiscal ran from April 1 through March 31.)

5. In the event of the death or disability of the President of the Council, the Chairman shall immediately call a meeting of the Executive Committee to select an Acting President, who shall assume the responsibilities of the President, as they are specified in Article 6 of the Constitution and in Bylaws 1 and 2, until the appointment of a new President.

Procedural Policies

1. Annual meetings of the Council shall be held during or near the first week of December.

2. If a member resigns, it must reapply for admission in the normal way if it wishes to resume membership.

3. Membership or affiliation, with or without vote, of non-academic institutions, associations, or foundations is undesirable.

4. Institutions accepted to membership in any given year are required to pay prorated dues on a quarterly basis for that fiscal year.

The Council of Graduate Schools in the United States

Member Institutions

Abilene Christian University
Adelphi University
Air Force Institute of Technology
Alfred University
*American University
Andrews University
Angelo State University
Appalachian State University
Arizona State University
Arkansas State University
Atlanta University
Auburn University
Ball State University
Baylor College of Medicine
Baylor University
*Boston College
Boston University
Bowling Green State University
Bradley University
*Brandeis University
Bridgewater State College
Brigham Young University
Brooklyn College of the City University of New York
*Brown University
*Bryn Mawr College
*California Institute of Technology
California State Polytechnic University, Pomona
California State University, Chico
California State University, Fresno
California State University, Fullerton
California State University, Hayward
California State University, Long Beach
California State University, Los Angeles
California State University, Northridge
California State University, Sacramento
*Carnegie-Mellon University
*Case Western Reserve University
*Catholic University of America
Central Michigan University
Central Missouri State University
Central Washington State College
Chicago State University
The City College of the City University of New York
The City University of New York
*Claremont Graduate School
*Clark University
Clarkson College of Technology
Clemson University
Cleveland State University
College of Medicine and Dentistry of New Jersey
College of Saint Rose
College of William and Mary
Colorado School of Mines
Colorado State University
*Columbia University
Connecticut College
Coppin State College
*Cornell University
Creighton University
Dartmouth College
DePaul University
Drake University
Drexel University
*Duke University
Duquesne University
East Carolina University
East Tennessee State University
East Texas State University
Eastern Illinois University
Eastern Kentucky University
Eastern Michigan University
Eastern Washington State College
*Emory University
Emporia Kansas State College
Fisk University
Florida Atlantic University
*Florida State University
Florida Technological University

*Fordham University
Fort Hays Kansas State College
Framingham State College
George Mason University
George Peabody College for Teachers
*George Washington University
*Georgetown University
Georgia Institute of Technology
Georgia Southern College
Georgia State University
Governors State University
Hahnemann Medical College
and Hospital of Philadelphia
*Harvard University
Hebrew Union College
Hofstra University
Holy Names College
Howard University
Idaho State University
*Illinois Institute of Technology
Illinois State University
Immaculate Heart College
Indiana State University
Indiana University
*Indiana University of Pennsylvania
*Iowa State University
Jackson State University
John Carroll University
*Johns Hopkins University
Kansas State College of Pittsburg
*Kansas State University
Kent State University
Lamar University
*Lehigh University
Loma Linda University
*Louisiana State University
Louisiana Tech University
Loyola College
Loyola Marymount University
*Loyola University of Chicago
Madison College
Mankato State University
Marquette University
Marshall University
*Massachusetts Institute of Technology
Medical College of Georgia
Medical College of Pennsylvania
Medical College of Wisconsin
Medical University of South Carolina
Memphis State University
Miami University
*Michigan State University
Michigan Technological University
Middle Tennessee State University
Midwestern State University
Mississippi College
Mississippi State University
Montana State University
Montclair State College
Morgan State University
Murray State University
Naval Postgraduate School
New Jersey Institute of Technology
New Mexico Institute of Mining
and Technology
New Mexico State University
*New School for Social Research
*New York University
Niagara University
North Carolina Central University
*North Carolina State University
at Raleigh
North Dakota State University
North Texas State University
Northeast Louisiana University
Northeastern Illinois University
Northeastern University
Northern Illinois University
Northwestern State University
of Louisiana
*Northwestern University
Nova University
Oakland University
*Ohio State University
Ohio University
*Oklahoma State University
Old Dominion University
*Oregon State University
Pace University
Pan American University
*Pennsylvania State University
Pepperdine University
Polytechnic Institute of New York
Princeton University
Purdue University

Queens College of the City University of New York
Rensselaer Polytechnic Institute
Rhode Island College
Rice University
Rockefeller University
Roosevelt University
Rutgers, The State University
St. Cloud State University
St. John's University
Saint Louis University
St Mary's University
Samford University
San Diego State University
San Francisco State University
San Jose State University
Sangamon State University
Seattle University
Seton Hall University
Shippensburg State College
South Dakota State University
Southern Illinois University at Carbondale
Southern Illinois University at Edwardsville
Southern Methodist University
Southern University and A&M College
Southwest Missouri State University
Southwest Texas State University
Stanford University
State University College at Fredonia
State University College at Oneonta
State University College at Plattsburgh
State University of New York at Albany
State University of New York at Binghamton
State University of New York at Buffalo
State University of New York—Downstate Medical Center
State University of New York at Stony Brook
Stephen F. Austin State University
Stetson University
Stevens Institute of Technology
*Syracuse University
*Temple University
Tennessee State University
Tennessee Technological University
*Texas A&M University
Texas Christian University
Texas Southern University
Texas Tech University
Texas Woman's University
Thomas Jefferson University
Towson State University
Trinity University
Tufts University
*Tulane University
Tuskegee Institute
United States International University
Utah State University
*Vanderbilt University
Villanova University
Virginia Commonwealth University
*Virginia Polytechnic Institute
Virginia State College
Wagner College
Wake Forest University
*Washington State University
Washington University
*Wayne State University
Wesleyan University
West Chester State College
West Texas State University
West Virginia College of Graduate Studies
*West Virginia University
Western Carolina University
Western Illinois University
Western Kentucky University
Western Michigan University
Western State College of Colorado
Western Washington State College
Wichita State University
William Paterson College
Winthrop College
Worcester Polytechnic Institute
Worcester State College
Wright State University
Xavier University
*Yale University
Yeshiva University

Youngstown State University
University of Akron
*University of Alabama
University of Alabama
in Birmingham
University of Alabama
in Huntsville
*University of Arizona
University of Arkansas
University of Bridgeport
*University of California, Berkeley
University of California, Davis
University of California, Irvine
University of California, Los Angeles
University of California, Riverside
University of California, San Diego
University of California,
Santa Barbara
*University of Chicago
*University of Cincinnati
*University of Colorado
University of Connecticut
University of Dayton
*University of Delaware
*University of Denver
University of Detroit
University of the District of Columbia
*University of Florida
University of Georgia
University of Hawaii
University of Houston
University of Idaho
University of Illinois
at Chicago Circle
University of Illinois
at the Medical Center
*University of Illinois
at Urbana-Champaign
*University of Iowa
*University of Kansas
*University of Kentucky
University of Louisville
University of Lowell
University of Maine at Orono
*University of Maryland
University of Massachusetts
University of Miami
*University of Michigan
University of Minnesota
University of Mississippi
University of Missouri, Columbia
University of Missouri, Kansas City
University of Missouri, Rolla
University of Missouri, St. Louis
University of Montana
*University of Nebraska
University of Nevada
University of Nevada, Las Vegas
University of New Hampshire
University of New Haven
University of New Mexico
University of New Orleans
*University of North Carolina,
Chapel Hill
University of North Carolina,
Charlotte
University of North Carolina,
Greensboro
*University of North Dakota
University of Northern Colorado
University of Northern Iowa
*University of Notre Dame
*University of Oklahoma
*University of Oregon
University of the Pacific
*University of Pennsylvania
*University of Pittsburgh
University of Rhode Island
University of Richmond
*University of Rochester
University of San Francisco
University of Santa Clara
University of Scranton
University of South Alabama
University of South Carolina
University of South Dakota
University of South Florida
*University of Southern California
*University of Southern Mississippi
University of Tennessee, Chattanooga
University of Tennessee, Knoxville
University of Tennessee, Martin
University of Tennessee Center
for the Health Sciences
University of Texas at Arlington
*University of Texas at Austin

University of Texas at San Antonio
University of Texas Health Science Center, San Antonio
University of Texas Medical Branch, Galveston
University of Toledo
University of Tulsa
*University of Utah
University of Vermont
*University of Virginia
*University of Washington
*University of Wisconsin, Madison
University of Wisconsin, Milwaukee
University of Wisconsin, Oshkosh
*University of Wyoming

---

*Founding institutions